FEBRUARY 1997

BOARDWATCH MAGAZINE

Guide to Internet Access and the World Wide Web

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Volume 1, Number 2

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BOARDWATCH MAGAZINE
Guide to Internet Access and the World Wide Web

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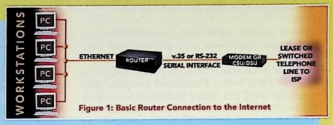

Figure 1: Basic Router Connection to the Internet

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EDITOR'S NOTES

by Jack Rickard

GO AWAY AND DIE...PRETTY PLEASE WITH SUGAR ON TOP

The disjuncture between public relations information/disinformation and reality is making my head spin. On the desk in front of me are nine major articles from industry titles such as ***Computer-World*** and ***ZD Internet*** ALL very confidently projecting the "consolidation" of the ISP market and the total elimination of small Internet Service Providers. The small ISP is dead.

The information is so confidently presented and so unanimous that I naturally assume I must be missing something. We have the best data on ISPs in the world, I talk with them daily, and NONE of this shows up for me. Have I lost my stuff?

Some of it is just perplexing. A ***ZD*** graph shows 1,310 ISPs in 1996 and projects declines each year until the year 2,000 when just 60 ISPs are left. I will be the first to admit I just don't have a clue how many ISPs there will be in 1997, much less 1998 or 1999 or 2000. Those guys must be really good at what they do to be able to calculate such numbers. Of course, I DO know that we had some 3,200 confirmed in our database with actual contact and names and addresses and so forth in 1996. Further, not a day goes by without our "finding" another couple or five ISPs that we missed. I don't know frankly how many ISPs there were in 1996. I know the absolute MINIMUM number there could have been, and it was about 3,200. So if they do so poorly projecting the CURRENT number of ISPs, how can they so confidently predict the future number of ISPs.

Actually, it goes farther than this. Article after article quotes "knowledgeable industry analysts" in determining that ISP consolidation is well underway and there will be a handful left shortly. So why after ten years in this business have I never heard of ANY of them - even their names? Somewhere, somebody is breeding quotable Internet experts at an absolutely incredible rate - and most seem gleaned from the real estate and automotive sales industries mere months ago.

There is the ever present Yankee Group and Jupiter Communications of course. These two groups have an absolutely perfect record in predicting the future of online activity - they have never even one year in a row gotten a SINGLE projection right. They're famous for it. You can send for my full 20-page photocopied report on this for just **$2,495.00** by the way. And therein lies another tale.

I'm not usually one for conspiracy theories, but after reviewing these nine articles, and comparing their contents with a flurry of "press releases" from some of the very large players in the industry, which I assumed everyone routinely ignored, I'm seeing sufficient commonality to conclude that the "Death of the ISP" is a VERY managed event. And I'm awe struck at the effectiveness of these massive public relations machines. The same people that have 90% of the U.S. population convinced that there are just 7 local telephone companies (I have a list of 1,100 actually) and three long distance companies (over 500), are now going to actually convince the world that there are a handful of Internet Service Providers, brazenly in the face of all reality-zone data to the contrary.

My major disappointment is that my peers seem content to allow it. I can tell you that if Jim Warren, John C. Dvorak, Dave Bunnell, Stewart Alsop, and Bill Machrone were all still manning the editors' desks in the PC industry, instead of retired to their villas and mailing in columns by modem, these PR guys would be having a bad hair day about now. As it is, it's almost a free ride.

And the message, while a bit juvenile, is pretty clear. "If we tell them they are dying, maybe they'll go away and die."

The heart of the problem operates on two levels. The first is that huge companies want a piece of the Internet Service Provider market. But they are finding it difficult to make money in the face of hugish customer support/acquisition costs at the $19.95 per month rate. If all of you small ISPs would go away, maybe it would work. Of course, we're also seeing a flurry of articles projecting the death of the **$19.95** rate, so it all fits.

I issued fairly dire warnings about this customer service issue THREE YEARS ago and somewhat before there really WAS a World Wide Web. But even if all the ISPs we know went away, IT WON'T WORK.

Let's talk a bit about reality as best I can detect it. First, AT&T did NOT bust the game and drop the price to **$19.95** thus ruining the picnic for everybody. They actually FROZE it there and prevented it from falling further. Had they not established this price point and sold it, the natural rate would be more like $15 per month.

Secondly, it is trivially easy to make a hat full of money providing connectivity at $15 per month. A hundred years later, that's about what we pay for a voice telephone line here in Colorado - and that includes the copper in the ground which ISPs do contribute to, but don't have to actually go bury themselves. The $19.95 flat rate is NOT going to die - despite all the wishful thinking of everyone in every major player from AT&T on down. It's not going to die for two reasons: Customers want it and vendors are willing to supply it. Done and done - get over it.

But from everything I can tell, 1997 is not only NOT going to be the year the smaller and medium sized ISPs die, it is probably going to be their heyday. It promises to be THE year where everyone finally realizes "Hey, we ain't paying social security on these guys. And they're willing to do the customer service." I think it will be a BOOM year for small ISPs, and after some pauses and ratchets, it will take off again in an incredible growth spurt.

Let's look at some trends that ARE based on facts, announcements, and reality:

THE SAVVY BIG GUYS WANT OUT OF DIAL-UP

Earlier in 1996, PSINet sold off their entire Pipeline dialup customer base of over 100,000 to MindSpring. This is not only an interesting deal, it is the bellwether deal. MindSpring will do all the marketing and all the customer service, but note that PSI will still provide all the dialup POPS and infrastructure. MindSpring pays them wholesale for the Internet.

BBN - one of the oldest ISPs, has a similar deal with AT&T WorldNet. AT&T does all the marketing and customer service, and BBN provides the infrastructure wholesale.

UUNET has gotten out of dial-up and is actively seeking wholesale accounts such as EARTHLINK, who now sports over 500 employees and 150,000 dial-up accounts. Earthlink does the marketing and customer service. UUNET does the infrastructure.

SPRINT and MCI have both introduced dialup to counter AT&T. Anybody heard ANYTHING about these two players in the dial-up market? I actually had a Sprint salesman tell me I would be better off with an account at NETCOM - that's what HE was doing.

NETCOM just made a bizarre announcement. This company has been a major dial-up player and they too claim 580,000 subscribers. But they've just announced that they are eliminating the $19.95 flat-rate account to focus on "productivity-seeking professionals." We can only assume that this new subscriber class consists of those willing to pay $30 per month. We would predict they won't find any. Meanwhile, all 580,000 current subscribers are grandfathered at $19.95. Why? Aside from

the obvious revenue, existing customers are no customer service problem at all. The big support is with the NEW customers.

COMPUSERVE. Wow is that a story. Big rollout of WOW, and a big shutdown of WOW at a big loss - all within a year. CompuServe tried dial-up Internet access, and they found it ICKY. They want no part of it.

TCI - The nations largest cable operator, announced in the Wall Street Journal that basically they are bailing on the Internet Access game. It just didn't work out. Other cable operators insist that Internet over cable will work. John Malone of TCI didn't get there being stupid. I'm sure they continue to play with it, but the cable-access Internet remains on the horizon, and it will remain there for years.

What about **AOL**. AOL is a weird company, largely because Steve Case is a genuinely strange man. They are approaching 8 million people on their service and are in any event and by any measure the big guy on the block. But they lost **$345 million** here recently. And they have basically given up on the commercial online service model and declared "We are an ISP too." They introduced **$19.95** flat-rate access to the Internet. In spite of adding 30,000 modems in the past 60 days to bring their total to 200,000, there is NO AOL AFTER 4:00 PM anywhere on the planet. It doesn't exist. And for the few that make it in, it is slow and clunky.

So much so, that five users in Los Angeles have actually filed a class action suit for inadequate service in the Los Angeles Superior Court. There are other legal actions across the country over the negative checkoff move of all accounts from the previous **$9.95** base to the current **$19.95** flat rate.

And any wonder? Any ISP can tell you that 8 million users won't fit on 200,000 modems. That's 40 users per modem. AOL will have to increase their ports to at least 700,000 and more likely 800,000 to hit the 10:1 mark. AOL has already announced plans that they are adding **$250 million** worth of infrastructure. I guess in that quantity they would get quite a discount - they might do it for **$250 million.**

The bottom line is that all the large companies that have been on the Internet long enough to know what is going on want NO PART OF DIAL-UP. Actually they do want part - the connectivity part. But somebody else is going to have to do the marketing and customer service. What we are seeing, one by one, is the larger players ceding the dial-up territory to the smaller service providers. I predict this trend will avalanche in 1997.

THIS TECHNOLOGY IS NOT MATURE

The other element driving this is technology. Most of the telcos are accustomed to living in a world where technology changes are measured in years, equipment is amortized over a period of time, and they can win by being ubiquitous. Being ubiquitous requires huge investments in equipment. But the Internet isn't precisely built yet. The technology is changing while we watch. It is NOT static.

If a large company, even one with HUGE resources, spends tens and hundreds of millions of dollars on infrastructure, waking up to a morning headline announcing that all of that equipment is obsolete and doesn't matter anymore is difficult. Many small ISPs are in agony over the expense of upgrading a couple of hundred lines to the new 56 kbps modem technology. Is the glass half empty or half full? It's actually an opportunity for a power demonstration of small ISPs deploying a new technology across hundreds of such ISPs in a period of WEEKS. Their larger brethren can't schedule MEETINGS about it for weeks, and we are talking about replacing hundreds of millions of dollars worth of hardware here in sites located all over the country. It would take months to write the deployment plan. The guy with 120 lines and some cash flow can do his whole operation over in three days in some cases - as long as he doesn't have to call a phone company to do part of it.

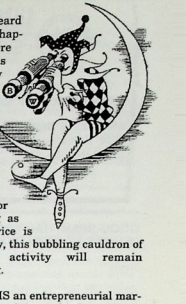
UUNET just bought 150 MAX TNT's from Ascend Communications. Actually Ascend is making some dynamite stuff and these TNT's will do dial-up, ISDN, Frame Relay, apparently some new XDSL stuff in an ISDN sort of way, and is probably as flexible and upgradeable as it gets. But 150 of these things has to be over **$50 million** dollars.

This week, the FCC approved the Unlicensed National Information Infrastructure (U-NII) band. This is actually comprised of three 100 MHz bands in the 5 GHz area specifically for 20 Mbps wireless data networking. One band is 200 mw for LAN's within a building. One band is limited to 1 watt for campus like networks. And the last band has a 4 watt ceiling ostensibly allowing a 6 mile radius network. The equipment is not expected to be terribly expensive. But if it becomes available, and a handful of small ISPs start mounting just five or six of these transmitters on light poles around town, they'll be offering customers 20 Mbps connections that don't even require a telephone line. The 20 Mbps is a bit of overkill at this point. Today's PC sees anything over about 2 Mbps as a complete waste - actually it doesn't see it at all. But if it gets out you can do 20 Mbps for **$19.95**, or even **$49.95**, will this go? And what will happen to all those hundreds of millions in modem ports then?

My point is not that U-NII band wireless is going to kill dial-up tomorrow. My point is that this technology is not mature. It is evolving, changing, and there are tremendous opportunities to improve it in ways that WILL matter to both provider and consumer. The 56 kbps modem and the U-NII band are just handy current examples falling out of the past 30 days of life on the Internet.

CONSOLIDATION - WHAT DOES IT MEAN

It IS true that ISPs are buying each other out at an incredible pace. UUNET was bought by MFS which has now been bought by WorldCom who already owns GridNet, etc. etc. ad nauseum. ISPs ARE merging, acquiring each other, and in some cases failing in the market. A. David Silver called this week to tell me of three I hadn't heard of that have just happened. But there is a tremendous amount of new blood gettin' into this business at the same time. Subscribers can change companies on a whim. Eight million AOL-ians are out looking for a home. As long as demand for service is doubling annually, this bubbling cauldron of entrepreneurial activity will remain intensely exciting.



But given that it IS an entrepreneurial market, with rapidly evolving technology, who in their right mind would ascribe the advantage in this market to large corporate entities that require months or years to make a move, and then move in such dramatic fashion that they have potentially billions invested in the wrong stuff at the wrong time? This is absurd.

This year is not going to be the death of the small ISP. It's going to be the greatest boom period they've ever imagined. The larger backbones will be actively wooing them to get them to purchase connections and infrastructure from them. Some larger companies will be wooing them to BUY them. Virtually all the large players are simply going to concede dial-up to them in toto. And there is no sign of any slackening in consumer demand for the Internet. Their main weapons are going to be excellent customer service, and a willingness to deploy new connectivity technologies with nearly barbaric and vicious aggressiveness.

The bottom line is that Internet Services will striate into various levels of the hierarchy. For all players, the grass will always look greener on the other side where the OTHER guy gets all the money and none of the work, but small ISPs with carefully controlled costs, small customer bases, and neat operations will thrive. And that success will simply draw more new players into the market. The barriers to entry at that size just aren't that great.

I suppose if all the ISPs read these nine articles predicting their death, and decide to meekly go away and die as instructed by these public relations professionals, it could happen. But I happen to know a few of these people. Not that they are not gentlemen and scholars all of the highest order mind you - and from the very best patrician families too I might hasten to add. But from my own personal experience, I would urge you not to rely TOO heavily on their genteel and refined nature in your business plans...

Jack Rickard
Editor Rotundus

Letters to the Editor

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LETTERS TO THE EDITOR

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GOOD SPAM, BAD SPAM (BABB'S BOOKMARKS IN DEC ISSUE)

Heya!

Nice article in the latest issue of Boardwatch, Chris. One thing; I'm not sure I should tell people this, but if you have a shell account on a Unix system, it's pretty darn trivial to grab all the email addresses in all the articles in a particular newsgroup without any fancy software...

Here's an example of how to extract some mailing addresses out of the 'alt.bbs' group from my shell account here on netcom:

```
$ cd /usr/spool/news/alt/bbs
$ grep '^From: ' * | tr ' ' '\
' | grep '@' | sort | uniq
```

That's all there is to it; the first line moves you to the news article archive directory and the second extracts the "From" line from each article, translates spaces to carriage returns, searches for the '@' symbol, sorts and removes dups. I can run this on a few thousand articles in about 90 seconds and produce a list of hundreds of email addresses of folk who are interested in BBS systems.

[of course, some of the results are interesting :-) like these few:
WereLion@Spanky.Butt.Brewery
anon@anon.com
anonymous@nomail.com
fuck@off.spammers.com
idiots@aol.com
]

I end up with a long list of the email addresses of everyone who posted to the group in the recent past. You can refine this further, of course, by stripping out the '<>' characters too by adding '| sed> *'s/<//;s/>//'* to the command pipe. Etc, etc.

Anyway, suffice to say that with about fifteen minutes to spare, it'd be little work to write a cute little script that you could feed a Usenet group name and it'd spit out a file with the same name that contains a list of all email addresses in the group.

Which is half the problem: getting this data is too darn easy!

Like you, I get WAY too much junk email and spams, particularly since I'm pretty busy on the net in newsgroups (I even have a bi-monthly FAQ that's posted automatically for me, of all horrors! :-). I used to use your strategy of just deleting them, but it's gotten worse in the last few months. Now what I do is I respond to the person sending it and Cc the postmaster on their system, asking (politely) to be removed immediately from their junkmail list.

I've done this a few dozen times and I've received information from two sysadmins indicating that they'd either frozen or shut off the user account. A tiny success, but success nonetheless!

Dunno what to suggest. I am very familiar with email — I wrote Elm, after all, and that includes the powerful Filter mail filtering program — but stare as I might, I can't find any commonality across the junk email I get that could be the basis of a filter ruleset, even a 'smart' one. The hosts change, the usernames change, the subjects change, and more. It's a definite problem.

Anyway, keep up the good work.

Best,

Dave Taylor
taylor@intuitive.com
http://www.intuitive.com

Dave:

Thanks for the script tips. As you point out, this stuff is just too easy to get, e-mail too inexpensive, and the temptation to "market" using other people's mailboxes is apparently overwhelming. I fear we did much with the December issue to describe the complexities of the problem, and too little to offer by way of solutions. We received several dozen inquiries on how to get in contact with Jeff Slaton from those who were wanting to hire him to help THEM market things by e-mail. It's a bit discouraging frankly.

But I guess if the problem has the author of ELM stumped, we didn't miss anything obvious. Again, thanks for writing.

Jack Rickard

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Advice to 16 Year Old — Followup

Jack,

I just wanted to say thanks for taking the time to write to Matt Schouten on starting a business. You showed interest and demonstrated creativity in what opportunities are possible in this increasingly crowded and frantic marketplace of ours. It was inspiring at this time of year.

Marshall Ball
General Manager
AT&T WorldNet(sm) Service
`MarshallBall@worldnet.att.net`

Marshall:

Thanks for the note. I've received several e-mail messages regarding this one particular letter. I'm not certain how it differed from a dozen others, but if it hit a nerve, well and good enough.

Many of the contributions to online communications have come from the anniversary impaired. But in today's environment, I'm seeing a fascination with "getting startup capital" among our younger brethren instead of a focus on doing something new and interesting with a computer. I suppose it's part of the inevitable maturation of an industry, with stories of IPOs, Netscape, and software companies that are an idea in January and a $10 million deal in August. But I confess I am not entirely given to this preoccupation with getting rich.

More to the point, I can't find many examples of anyone doing anything worthwhile with that as the primary goal. It requires a somewhat more complex set of goals and aspirations to achieve anything of significance, and most of the opportunities lie rather close at hand. Those seeking simple piles o'bucks will pretty much take care of themselves. But those seeking to either change or save the world, can be genuinely dangerous - and even where innocuous - much more interesting.

Warmest Regards;

Jack Rickard

◆ ◆ ◆

Dear Mr Rickard,

My name is Joseph Rutkowski CEO of Cyber America Corporation, and I am just dropping you a note to thank you for the article you wrote, The state of the internet service provider.We are a primary access provider and we have been quoting certain points of your article as part of our sales

pitch, and it has been helping us because of what we can offer.

1. We have simplified the architecture for traffic to the backbone.
2. We guarantee in writing a 2.5 to 1 oversubscription rate to our clients,many of whom are ISP's,with IDLS.

If you would like to learn more on how Cyber America operates utilizing new technologies please call me at 215 830 1454,or email me at **JSRutkowski@cyberamericacorp.net** . Once again thank you very much !

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Fax: **215.658.0505**

Mr. Ruthkowski:

The Internet Service Provider market has of course become very competitive. And almost everyone in the industry is looking for a way to differentiate their service from everyone else's. Particularly, many opportunities for developing better services exist. But too often, they are terribly difficult to communicate to potential customers once made. I haven't a clue how you can "simplify the architecture for traffic to the backbone" beyond what it already is, and I'm even more mystified as to how precisely you might communicate that to anyone in any persuasive manner.

I also don't personally see a lot of value in a 2.5 to 1.0 oversubscription rate. This is a kind of a threshold thing - once you get all the data that can be gotten with a 28.8 kbps modem, you've pretty much got it all. That there is extra bandwidth available, doesn't offer any particular advantage, or frankly make a lot of technical sense to me.

All that said, I'm pleased you found the article informative and useful. Your efforts at providing better Internet connections to the public appear to already reap immediate reward, so I'll simply wish you the best of fortunes with your service.

Jack Rickard

◆ ◆ ◆

THE GIFT

Jack,

I receive loads of junk snail mail every day. Yesterday was a bit different. I spotted a letter from Boardwatch in the usual trash pile from the mailbox. Since it was from your mag, I opened it first. I can't tell you how pleased and impressed I was at what I found. Your idea of offering your subscribers a free year's subscription if we would reciprocate the offer to a friend is at once a stroke of marketing genius and a wonderful example of giving. May the Force be with you and yours this holiday season...and don't forget to check your snail mail; my order will be arriving shortly.

Rick Sink
ricksink@mindspring.com

Thanks Rick. For those out of context on the dialog, we mailed our subscribers an offer whereby they could give a Christmas gift subscription to a friend at our regular $36 annual subscription price. If they did, we would renew the gift giver as well - at no charge. In this way, they would bring us a new subscriber, the new subscriber would receive a free subscription courtesy of the friend, and the original subscriber got a free subscription as well. It is a curious win/win/win and I confess I'm feeling a touch smug about devising it. It has to cost one of us something somewhere along the way, but I've never figured out quite who or how.

One of the curious things I've learned along the way, which I'm not absolutely certain is restricted to the online community, is that it takes a certain generosity of spirit just to get to play. But once you adopt that posture, it is most curious that the harder you try to give away more than you get, the harder that feat becomes to accomplish. I confess I don't understand what cosmic force is at play there,but the engineer in me delights in the fact that we can put a measurement device on the output and watch it work out that way every time.

We've got one subscriber that has brought us four new friends immediately - and I think I have to publish Boardwatch until the end of the year 2001 to cover my end of his renewal deal. No problem.

Regards;

Jack Rickard

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TRACEROUTE

I read your article on tracerouting. I've been using this command for some time now. My question is: How can you get the traceroute command to return an absolute value as to the size (speed in kbps or mbps) of a given provider's bandwidth? Is there a command other than traceroute that will return this value? I ask, because there are providers here in Albany, NY that claim to have T1 connections, when in reality they have frac T ports, like 256, 384, etc. They tell the public that they have T1's because it IS a T1 line but the speed has been reduced via their requested port speed. There is also another provider here that claims to have a T3 but, and I've been told this by telco personnel, the T3 is only a local loop and is restricted back into a T1 at the telco switching station. Needless to say, this creates much confusion in the minds of consumers when they are picking a provider. It also gives each and everyone one of us a bad name in the industry because so many providers are running around spreading false claims and misinformation. I would like to know of a definitive method that would show, once and for all, the maximum bandwidth any given provider has at its disposl. I thank you for any help you may offer in this regard.

Sincerely,

David Conboy, CEO
Global 2000
dconboy@global2000.net or
sysop@global2000.net

David:

First, I agree that the level of misinformation provided by some Internet Service Providers is very nearly criminal. I would look for a few to actually be prosecuted under FTC auspices eventually and that may clean it up a bit. But I agree it's becoming a serious problem. Since we publish data in our Directory of Internet Service Providers - mostly provided voluntarily by the ISPs themselves - I find it particularly irksome to encounter some extremely petty and small-minded individuals always cynically at the ready to cheat the game at any corner they can find to worm themselves into.

I can only pass on to you what I tell myself to derive comfort. I've been doing this for ten years, and I've never met even ONE entrepreneur that has followed that line and made it to any success at all. They always LOOK pretty good for awhile, because they use the same petty dishonesty to crow about their ostensible "success." But sooner or later, if you watch them carefully, you can pick up some GREAT deals on equipment and office furniture at the auction. It is part of my darker side that I confess I have actually flown across country to bid on some item as minor as an ashtray or lamp just to mark the passing of one of these heroes from our midst. It is ironic that the sole limit on their own success lies entirely within themselves.

In the meantime, there is no function directly in TRACEROUTE that will allow you to reliably calculate the bandwidth of any particular connection. It does give you a turnaround time and there are some ugly things you can do to generate a pretty good guess, but most of those same calculations are a little better using PING.

*Maximized Software Inc. has generated a delightfully simple little program that tries to establish an FTP or HTTP connection with a host, and transfers as much data as possible in a 12 second window. It then displays the highest data throughput achieved, the average bytes/second, etc. I actually find this little program a delight to use, and while it does not fill the bill as quite the foolproof empirical test you are seeking, I've found it very useful for very similar purposes. The software is titled TcpSpeed, and it is available at **http://maximized.com/freeware/tcpspeed**. More info from **mailto:info@maximized.com**.*

Regards;

Jack Rickard

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"Top Secret" Motorola Technology in Hartwell, GA?

Mr. Rickard:

I admire your realistic and somewhat cynical look at the computer and telecommunications fields. Your ideas are always fresh and different.

Here is some "different" information I recently came across. Perhaps you might be interested.

I live in Hartwell, Georgia, about 90 miles northeast of Atlanta. In September 1996, my local phone company (Hart Telephone) started an IP service called Hart Global Net. Not only was I thrilled with the idea of getting a local connection, but the service was actually quite good!

That all changed about 4 weeks ago. Connections to their server were almost impossible to obtain and my FTP upload data transfer rates went drastically down from 2500 bytes/sec to 1000 bytes/sec. I had been told by the phone company that they made hardware changes and that my connections should have "improved dramatically."

What is intriguing is that their tech support staff (actually located in Toccoa, Ga.) told me that the equipment that was installed was a "top secret" system supplied to them by Motorola. The support person said the system currently was too fast for most of the modems now out there but that it was intended to be used with the newer 56K modems when they begin shipping. The tech person decribed this technology as something no one knew about and that it was the size of a small room.

This I can say: my wife's laptop 14.4K modem (IBM Thinkpad 701) is useless with this "new technology." It will not connect to the Web. It worked perfectly prior to this equipment change by the phone company. My 28.8K modem has only been working correctly the past day after 4 weeks of frustration.

The entire time they have been trying to "tune down" this equipment, Hart Telephone has repeatedly denied that my connectivity problems were the result of their equipment change. One of their managers even suggested I get a 56K line at $500.00 per month to increase my FTP upload times (I maintain a web site).

Is Motorola experimenting with new technology in this area? Is this some sort of CyberExperiment funded by Hart Global Net customers?

Anyway, just thought you might like to know the next generation of high-tech telecommunications equipment apparently is right here in Hartwell, Ga., population 6000.

Have a great day.

Sincerely,

Alan Henderson
ahender@holonet.net

For additional information contact Ron Anderson, Internet Systems Manager, Hart Telephone Co., **1-706-376-4701**.

Mr. Henderson:

U.S. Robotics is currently deploying a new x2 technology that will provide some users of some ISPs with a 56 kbps connection. It has thrown the modem and remote access server vendors across the industry into a parapatetic panic to respond with a 56 kbps solution of their own. Many are rushing into "tests" at Internet Service Providers across the country with products that may be, ahem..., premature. Others are furiously discussing products that don't yet exist, as if they do, and hoping that by the time anyone knows the difference, they will indeed have it.

Ultimately I think 56 kbps will be real enough, though like 28.8 kbps, not real for everyone and not always 56 kbps. It will also be standardized - eventually. But in the meantime, you may see some rather ugly scrambling about to get new and glitchy products up and running. I believe your experience was totally real, and I rather gather that you were an unwilling participant in an experiment.

But on the other hand, I rather like experiments. The perception that the Internet is a "production" network suitable for prime time is not a concept I quite subscribe to. It is still very much a work in progress, and when you logon to it, you are partipating in its evolution and development. Implicit in your letter is a bit of a demand for reliable service, and some angst at the inconvenience caused by problems with it. I'm sure that your ISP will get it worked out eventually, and in the process will lead in helping develop faster speeds and better connections. In the meantime, you may often experience some anomalies as the architecture and technology continue to evolve. If that is unacceptable, I quite understand, sympathize, and commiserate. But please get off my network and go back to watching television.

Jack Rickard

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A SUGGESTION FOR A NEW HTML TAG AND NEW BROWSER FUNCTIONALITY

Jack:

I'm not sure who to best make this suggestion to, so I thought I'd send it to you, hoping that you'd know who to forward it to.

I'm sure we have all encountered too many "dead links" on web pages. The usual approach to dealing with them is either to ignore them and assume that someone else will find/report them or to find a link on the web site to the webmasters email address, copy the URL of the page with the offending link, copy the text of the link and then send off a quick email. It would be nice if there was a quicker way to achieve the latter, so I propose a new HTML tag and new browser functionality to match.

The tag would belong somewhere in the <HEAD> section and I envision it being something obvious like <BADLINKREPORT>. Thus you could code something like:

<BADLINKREPORT HREF="mailto:webmaster@somesite.com" SUBJECT="Bad link report" BODY="Page Name, Link Name">(Could code an entire HTML form in here)</BADLINKREPORT>

Then the browser could translate these tags into a productive functionality when a link is bad. Two possibilities come to mind... putting a "Report bad link" menu item in the context menu for the link or automatically offering the user the function when they click on a link that comes back with an error code. Could have the same capability for a <TYPOREPORT> tag as well.

Maybe I'm dreaming, but with an easier way to report defective pages, I believe there would be less of them.

Thanks for listening...

Nick MacDonald
nmd@nbnet.nb.ca

You're dreaming Nick. But that's where improvements come from. I think it has merit.

Jack Rickard

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LIGHTSPEED ISN'T FAST ENOUGH FOR US TREKKIES

Mr. Rickard,

It is a pleasure writing to the editor of such a great magazine.

Before I subscribed I would frequent the bookstand to acquire the latest issue of Boardwatch.

I remember feeling I had a "secret treasure" in my hand while the people beside me were reading Internet Gizmo, Internet Gazmo, and other various internet magazines.

If the person looked like they wouldn't bite, I would make a friendly suggestion to check out Boardwatch... who knows, they may have already subscribed!

I have discovered that General Telephone and Electric (GTE) is currently providing analog cable modem service in my home town of Clearwater, Florida. GTE claims the service will be a dedicated connection providing 4Mbps for both receiving and transmitting.

I realize that bandwidth doesn't matter if the server your connected to is a 386 25MHz with a 14.4 modem... BUT..... do you have any reason to believe I could approach even 1Mbps in some RARE instances, or do you suspect a bottleneck could lie within GTE's own routers.

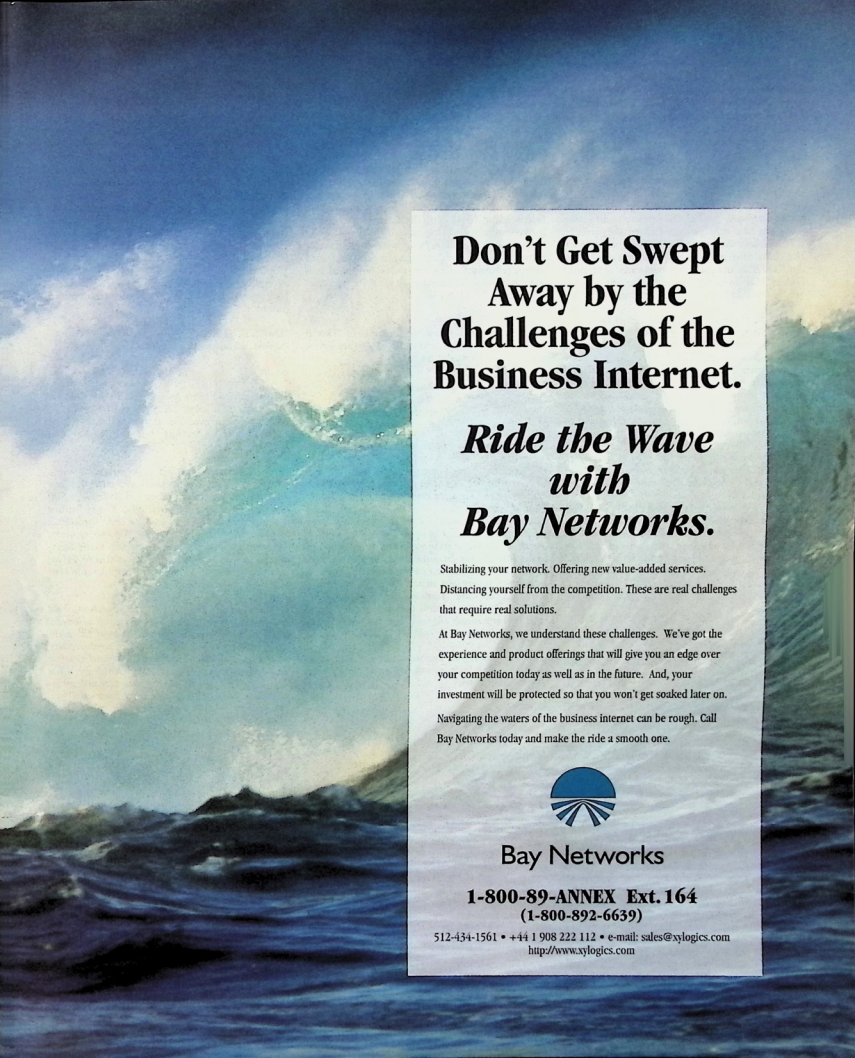
The service is about $50.00 a month for unlimited use. The only other cost being a Network Interface Card.

I know I'm a little bandwidth greedy but the saying is "Lightspeed just isn't fast enough for us Trekkies!"

P.S. Don't let the good work keep you up... but keep up the good work!

Happy Holidays!

Kevin Counts
digacat@ix.netcom.com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Kevin:

It's a pleasure hearing from a reader of such a great magazine. Thank you much for the kind words regarding Boardwatch. Yes, we do fancy ourselves as "hardcore" against the lightweights publishing the very current news that the Internet is cool. We think it's cool too. But that hardly warrants a monthly publishing effort.

The entire spirit of online communications lies in experimentation. Actually, it has come to light that if you could get a 4 Mbps connection to the Internet, and if the servers would give you data at a 4 Mbps rate (which they won't), it is unlikely that your BROWSER can uncock the data and put it on the screen that fast. And GTE is actually the company that published this information first, so they're not really trying to pull a fast one here.

Were I in their area, and cognizant that they have announced this information despite the obvious negatives for what they are trying to do, I would be moved $50 worth to join their experiment. They have certainly established credibility with me. A NIC card is less than $40 now in most cases. So I would say you've landed in an interesting geographic zone. I would not only urge you to give it a try, but to let us know what you find.

The only downside I can imagine is that after a month or so you decide it wasn't worth the ducats and go back to your more conventional connection.

And I'm with you. There isn't enough bandwidth or speed in the space-time continuum as we know it. An absolute truism online for the past twenty years is that faster is better, and cheaper is better still. But we are on a five year mission to find SOMETHING faster than 28.8 kbps without buying a telephone company outright.

Jack Rickard

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Re: 56K modems

I am the primary technician for a local ISP. We use Boca modems for our dialup lines.

Regards the "56K" issue, as you mention, most phone lines can barely handle 28K.. forget 56K. And I don't see local telcos shelling out the bucks to replace billions of feet of copper with fiber lines, when their voice customers are quite happy with the existing service.

Regards the USR vs Rockwell issue, I would have to stand that I have had nothing but headaches from both their technologies. The USR Sportsters dont like to connect to true V.34 modems, even the newer ones that are supposedly fixed. We were using something called "Nethoppers" from Rockwell with builtin Rockwell chipset modems for one of our POPs. After struggling to get it to stop freezing, to negotiate with customers modems, and in general do what it was promised to do, we replaced it with a unix server and a rack of Boca modems, which is what all our POPs now run.

Despite users "demand" for 56K dialup, I just don't see it happening anytime soon. The phone lines don't support it, the standards are incompatible, and NEITHER of the vendors promising it, in my mind, are capable of producing a quality cutting edge product such as this.

Anyone that wants more than 28.8K, is going to either have to go ISDN (which I don't like much either - too damn expensive, for both the equipment, the line, AND the per-minute charges most US telcos charge), or is going to have to get a leased line. Most telcos offer local loop 64K circuits fairly inexpensively,and they are ALWAYS at 64K, and instead of struggling with modem configuration, you can just plug in the CSU, and either a router or a unix or NT box, and run with it. And never deal with an AT command or a busy signal again.

Also, you might want to mention to "David Hakala" that the current IP numbering scheme is 32 bit, not 64 bit.

D Chiodo
djc@microwave.com

D.

Mr. Hakala is no longer with us.

I'm hearing some variation of what you say from a number of Internet Service Providers, primarily the smaller ones with analog lines. I could issue unctious and soothing sounds to salve the wounds and reassure you, and will if you demand it. But it is my considered opinion that you are whistling in the dark. 56 kbps looks like it will be quite real, and a serious segment of the dial-up customer base is going to be very interested in it - to the point that I envision serious market share movement. Whether or not you want to "forget" 56 kbps, it will be very much in your face rather soonish I do fear.

You may take that opinion and do with it as you like. I've been wrong before. But it's been a very long time.

Jack Rickard

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Tech-Wars Circa 1997: Open Standards Required NOW!

Thanks, Jack, for another excellent analysis. I must point out, however, that you neglected your watchdog duty as one of the most technically astute, big-picture analysts in the industry. I don't mind that you claim you can't see the winner—but why in the world won't you say who <bold italics on>should<bold ital off> win, and why? If it matters so much, then surely you should tell us if one course will be better than the other FOR CONSUMERS. If neither course offers significant advantages, then you should be screaming for the respective players to ADOPT A STANDARD, for heaven's sake! What gives, Jack? Why have you lapsed into the role of observer and scorekeeper instead of advocate? Wake up and help us out!!!

Frankly, I think we should all be screaming to high heaven over the possibility of a split standard that is economically damaging to a lot of people and slows down industry progress. Competition in standards is NOT good. Neither is a private monopoly. So the only answer is open standards, such as V.34 was. As a U.S. Robotics customer, it's in my best interest to see x2 win—but I also believe that privatized "standards" are B-A-D. As a former OS/2 Evangelist and Online Advocate for IBM who had his head handed to him by Microsoft, I know the pain of fighting an entrenched (if inferior) standard promoted by a ruthless corporation. I'd hate to see U.S. Robotics end up with a monopoly—but I also hate the thought of not being able to upgrade the USR modems I bought.

So help out, Jack—demand an open, cooperative standard and ask your readers to demand one too!

"David B. Whittle"
<dave.whittle@usa.net>

David:

Well its a little more complicated than that, as these things always are. It's a little early to call a winner, and I'm not sure I know who SHOULD win, or that it would matter one whit if I did.

First, standards inhibit innovation to some degree. We had a great standard with the Bell 103A but I myself don't want to go back to 300 bps data connections. It is easy to say "adopt a standard" in arrears, but I've been through a number of these and it always fascinates me to see people wanting standards when the technology doesn't even work yet. There is no "standard" for 56 kbps for the very simple reason that there is no 56 kbps.

So put yourself in U.S. Robotic's position. You think you have a technology that will allow 56 kbps over standard analog lines to the subscriber home. You also have an architecture based on upgradeable flash ROM and generic Digital Signal Processor technology that would allow you to deploy this technology in software very quickly and very inexpensively. As soon as you announce it, everyone screams that you should make it compatible with Lucent and Rockwell's version. This in the face of the overwhelming fact that Rockwell and Lucent don't HAVE a version ready to make interoperable with.

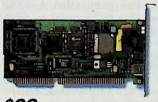
U.S. Robotics has a calendar advantage in this case created by their somewhat more problematic DSP architecture. Why in heaven's name would you want them to give that up.

Now to standards. Let's say USR "wins" in your estimation. And we adopt it IMMEDIATELY as a standard. And Lucent has a version that does a 45 kbps back channel instead of 28.8 kbps. Should we eschew this advance because it is not "standard"?

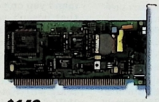
As it so happens, U.S. Robotics did submit their technology to the ITU standards committee as early as September 1996. I would guess that a 56 kbps standard would be issued then in about the spring of 1998. By that time, the various versions will have sorted themselves all out.

Call us crazy, but we're introducing our new DIVA for ISDN access for just $99. But only till March 15.

(Hey, we're not insane!)



$99 *(SRP $249)* ***DIVA 2.0***
The Internet ISDN board designed for Windows 95. *Simple configuration. ISA bus. Optional POTS support. Drivers for Windows 95, Windows NT.**
TD Part Number: 031797



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DIVA ISDN

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DIVA ISDN products come with built-in NT-1 and Multilink PPP. S/T versions and drivers for Windows 3.X or OS/2 are available on request. Check the Web for balance of terms and conditions of this offer; limit 3 cards total per Internet service provider location while supplies last, quantities are limited. Product intended for use as client and client/server. Offer expires March 15, 1997.

As to the consumer, they have already won. The battle there wasn't actually between x2, V.Flex2, or K56PLUS, but between two architectures, the monolithic modem chipsets ground out in unfathonable quantities by Rockwell, or the software/DSP architecture favored by U.S. Robotics and a handful of other modem manufacturers. The software/DSP version won. I would not expect ANY new modem releases using monolithic chipsets ever again. All modems will be software upgradeable. And whatever version the consumer picks, they will ultimately have to have a software upgrade for. Most of those will be free. You will just download the software from the website and run it to upgrade your modem.

Finally, you don't want to see U.S. Robotics have a "monopoly" on modem technology? Putting aside for the moment the ultimate implausibility of this concept from the get go, did you lose any sleep over Rockwell's overwhelming dominance of modem chip sets over the past two years? We're potentially seeing a power shift here. And there are pretty huge stakes economically. But Rockwell has made the chipsets in probably 85% of the modem models introduced in the past two years. U.S. Robotics still by some estimates had a 38% share of desktop modem volume. But Rockwell was and is in more different modem models than any other technology. It has been the closest thing you will ever see to a "monopoly" in modem technology. This commiditization of modems has actually hurt a lot of modem companies. Margins are razor thin, and consumers have a wealth of options at very inexpensive prices. It was not all that long ago that we were all paying $1200 for 9600 bps U.S. Robotics HST modems. Today, 28.8 kbps modems are ubiquitous at less than $200. And we are on the cusp of future advances being made in software at even lower prices. The consumer is doing pretty well thank you.

Who SHOULD win? Well that's easy enough. The fastest, most reliable technology delivered at the lowest price should win. Right now most of the entries aren't even available yet, so yes, I'm having a little problem "picking the winner." But I would guess that the long-term overall outcome will be threefold:

1. Consumers - will migrate to 56 kbps rather readily and gratefully.

2. ISPs - will be forced into a serious capital investment in new technology to stay relevant.

3. All remote access server developers will benefit to some degree from this retooling.

4. U.S. Robotics will go from near zero market share among ISP remote access server products to become a serious player - 20-22% range. And yes, I suppose some potential for even greater gains.

I'm not seeing a lot of losers here. Some companies will lose a bit of market share, but in the face of increasing sales. And the game isn't over. Ascend, Bay Networks, and Livingston are not likely to just give it away.

So I will decline to demand an open cooperative standard. Instead, I will demand faster, better, cheaper. And once I have it, I will demand faster, better cheaper once again. At some point, I'm confident from lessons learned in the past 15 incarnations of this that it will once again be to everyone's advantage to interoperate pretty quickly. And indeed, the ITU will be able to issue a standard again - until the next jump.

Jack Rickard

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INFO ON ISPs

Jack:

I am writing in regards to your magazine, I have just started in the business and was using your Quarterly Directory Summer Issue of 1996 as a reference to all the ISP's. The issue was very helpful in contacts and information. I work for an "employee owned company" which resells new and refurbished network hardware. Another great job you do is explaining particular problems the readers are having, it shows that your really interested in the readers questions. My question is "How often does the ISP listings come out, and is there a system for direct e-mail to get the information?" Thanks again for all the help and keep up the good work.

You dont have to e-mail I'll read it in the next issue.

Edward Doyle
C/O MSI Communications
ed@msic.com

Ed:

*We make additions corrections to the ISP database daily. We update the online listings at **http://www.boardwatch.com** on at least a weekly basis. The listings have been published in print quarterly, but this year we are going to try to do this bi-monthly. There is no system for getting the information by direct e-mail. It is available on the web.*

Regards;

Jack Rickard

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"SPAM" REGULATIONS

I was very disappointed in the December coverage of "spam." While the articles did point out there are many definitions for "spam," all of them failed to mention the one regulation that does indeed exist which can protect us from the worst and most pervasive form of so-called spam: unsolicited email. The regulation can only protect us if people know about it and do their best to enforce it by reporting violations to the ISPs involved. I'm referring to USC Title 47, section 227 p (b)(1)(C) which can be read at **http://www.law.cornel.edu/uscode/47/227.html**.

At first this regulation does not appear to apply to email. Upon examination of the definition of "facsimile," it is clear the regulation was written to cover then unforseeable future automated means of sending unsolicited advertisements, the successor to the facsimile machine, email. Even a strict reading of the definition readily accommodates email. So unsolicited email is indeed illegal. I'm not the only one who believes this. Status as illegal activity is currently used frequently by ISPs to cancel contracts of users who engage in unsolicited email advertising. Your omission of this fact did a grave disservice to your readership.

The December "spam" issue also failed to refer to another source of useful anti-spam information: the blacklist, **http://math-www.uni-paderborn.de/~axel/BL/blacklist.html**.

Barbara L. Dijker
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FAX: **+1 303 443 9718**
Web: **http://www.labyrinth.com**

Barbara:

First, the law cited does not specify electronic mail, and we found that no case history in any United States court exists to support your "claim" that it does. It is a point of view, and a legal opinion held almost solely by "net lawyers" in newsgroups. We did look at it, and generally decided it was wishful thinking. It may ultimately be held in a court that it does, but until that time, this abuse of email is not technically illegal, at least under this law.

Blacklists on the other hand, almost definitely are illegal. So I don't think we did anyone a disservice by failing to subscribe to your particular point of view. The anti-spam rabids would advocate that everyone send complaining messages to some poor ISP somewhere, and that screaming about it as loudly as possible is the cure. I rather favor filter software. It is a problem, but not one cured by just getting mad at it.

Jack Rickard

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USE OF EDITORIALS

Jack

Firstly, let me take this opportunity to commend you on your fine publication. Any ISP that doesn't read this thing cover to cover every month is missing the boat. Your willingness to absolutely ignore conventional wisdom and to examine issues with a fresh perspective reminds of the early writings of Bill James (a baseball writer of some reknown). Keep up the good work and know that you are doing things, like mapping the backbone, that are carving out a place in Internet history for you and your mag.

The reason that I am writing is as follows. We are an ISP located in Toronto, Canada and have embarked on a franchising program. We are approaching things a bit differently then First Internet or Sinna (but that is a different discussion). Please feel free to check out the website (address below, although I dislike the site in its current state). As part of our standard franchise package, sent out to interested parties, I have started to include two of your articles, the editorials from July and November, 1996.

They are entirely ad idem with our view of the market and provide a perspective not available elsewhere. Suddenly it occured to me, before I distribute too many, I should check with you and make sure it is ok!!! I have probably sent out about a dozen or so. In no way do I represent that you are in any way endorsing or affiliated with us. I include them simply for their content. Please confirm for me that you are OK with this.

If you prefer, I would be more then happy to courier the complete package to you for your review before providing me with an answer. Simply let me know by return e-mail.

Lastly, a comment on the ISP Directory. I cannot believe the number of providers that claim to be in markets they are not in. I have noticed this with both the Toronto market listings and the 604 market listings (Vancouver, Victoria Bristish Columbia). I know you are only serving up the info, but what a joke. In the Vancouver listings I found a provider that is only in North Bay, Ontario (pop appx 80,000) and NOWHERE else. What were they thinking???? There were at least a dozen that were incorrect, and that is without looking to hard. It is a wonder to me that an ISP would so position themselves. I guess that is akin to another phenomenon, the "we have a T3" statement, that is made by god knows how many providers in our marketplace, when we know (from their backbone vendors) that they have either a T1 or a 10MB ethernet connection. By that logic I guess we have a 155MB ATM connection, because that is the medium for one of our connections.

No doubt this will come back to haunt.

I look forward to hearing back. Keep up the good work!!

Regards

Elliot Noss
Phone:(416)214-6363 ext 526
Pathway Communications - Complete
enoss@pathcom.com
http://www.pathcom.com
www.franchise.pathcom.com

Elliot:

We are doing everything we can toward accuracy, but at some point we do have to rely on the Internet Service Providers to provide truthful information. It is rather shortsighted for them to do otherwise. If they list in Vancouver, readers will call to try to get an account. If they don't have a POP in Vancouver, it will rather reflect badly on the ISP I would think. Certainly over the long term, the credible ISPs will out. But it is true that some people have to learn the hard way.

Thanks for writing.

Jack Rickard

TRACEROUTE

Jack-

I just discovered your magazine, and love it. I even got my (now former) employer to buy your quarterly ISP Report. Fascinating.

In my second issue, 12/96, you wrote about Traceroute. Slightly over my head, but very interesting. I'd like to get it and use it to learn. I went to **ftp://ee.lbl.gov/old** as you suggested, but the traceroute files all ended in .tarZ extensions.

Does this mean they are UNIX versions of traceroute? How can I download and work with a .tarZ file? Is there a version I can download that will work with my 486/66 running 16MB of RAM and Win3.1, (i.e. not requiring Windows 95)?

I'm a "newbie" on the web, but learning the Internet business fast. Thanks for your plain, unbiased-by-advertising-bucks, truthful point of view. I'll keep reading.

Bob Vaughan
bobv@wolfenet.com

Bob:

Windows 3.1 is part of the history of personal computers - not a current operating system. I would urge you to upgrade as soon as possible. That said, it is true that many still use it. It did not come with a Windows Sockets TCP/IP stack. Typically, you must add one on to get on the network at all. The most common is Trumpet Winsock, but many commercial companies such as FTP software and NetManage offer commercial Winsocks for Windows 3.1. Most of these do include a traceroute function as part of the suite of applications that come with the Winsock.

*If yours didn't, you might try to find a program by IPSwitch Technologies titled WS_WATCH. The program has actually been discontinued in favor of a new release titled WHAT'S UP that is even more capable. You can get WHAT'S UP from **http://www.ipswitch.com/**. Unfortunately, it doesn't work on Windows 3.1 at all requiring either Windows95 or NT.*

*You can still find copies of WS-WATCH floating around. We found one at **http://www.ccs.org/winsock/cica.htm** easily enough. WS_WATCH contains not only traceroute, but other utilities such as finger, whois, nslookup, etc that you might find similarly useful. The heart of it is actually an automated PING program that allows you to "watch" a machine to make sure it doesn't go down. The later versions incorporated fax and pager alarms in the event a machine goes down. Really quite useful. We have a version hooked up to dial an answering machine that actually reboots the computer that "went down." In this way, WS WATCH can actually be used to monitor computers and if they fail to respond to ping, reboot them.*

But it does have a reasonably capable traceroute that will work well with Windows 3.1.

Thanks for reading.

Jack Rickard

NAPS

Good afternoon,

I am doing some research into the economics of the Internet and I was wondering if you could answer a few questions or maybe point me in the right direction.

I am trying to piece together who gets paid what as a packet travels across the Internet.

1. From the user to the central office
2. From the central office to the Local ISP POP
3. From the Local ISP POP to the ISP Backbone
4. From the ISP Backbone to the NAP

I have done some research and understand who the players are, but I am really trying to get an understanding of how much is paid for a connection to a NAP, or is it through peering arrangements. I would imagine, however that there must be some sort of fee involved, in fact I read in a recent issue of Web Week that DEC is developing their own Internet Backbone. In the article a cost of $5,200 a month is paid for a basic NAP connection. I was wondering what is covered exactly in that figure.

I have read the Fall issue of the Boardwatch directory and there is some interesting information on ISPs and some economics on the average ISP, but I would like to see some more information on the other components of Internet infrastructure. Thank you very much, I'd truly appreciate a reply.

Hannah
hpark@shore.net

Hannah:

I'll try. But I rather gather you are trying to make more of it than there quite is there, and I must conclude you work for a telco somewhere.

The Internet is a little vague. This is partly due to its nature as a belief system more than a network. And it is partly due to the very different uses people put it to. Your user to central office model implies a dial-up connection to the Internet.

1. From the user to the central office. Since you are using standard analog telephone service, for most users, the connection to the ISP is from the subscriber site to the ISP via the switched network. As such, the link from the subscriber to the telco central office is identical to any ordinary voice telephone connection. In most areas, this is an unmetered flat-rate connection at anywhere from $10 to $22 per month. You can talk on it, or connect a modem to it and pass packets. It doesn't know or differentiate.

2. From Central Office to ISP. Very nearly the same. The ISP can have a similar analog telephone line or they may have channelized digital trunks - typically a 24 channel T-1. Again, this is treated like a voice telephone connection. That packets transit are largely immaterial.

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3. From local ISP POP to the ISP backbone. This is typically a leased line connection from a telephone company. In the case of a 1.544 Mbps T-1 leased line, this involves a local charge of five or six hundred dollars per month depending on the distance from the ISP dial-up POP to the backbone. The backbone itself may be also owned by the ISP, as in the case of PSInet or UUNET etc. Or the backbone connection may be leased from a national backbone operator - typically at an average charge of $2300 per month.

4. From the ISP to the NAP. For the most part, national backbone operators are connected at the NAPs. But some ISP's do sport direct connections to nearby NAPs, without operating much of a backbone themselves, and without going through a national backbone provider. Again, this involves a leased data telephone line provided by a telephone company from the ISP to the NAP location. It also typically requires a monthly NAP fee - often on the order of $5000 per month, which allows you to place equipment there - typically a router - and connect to the NAP network.

The fundamental flaw in all this is that once you are at the NAP, you aren't anywhere. You have a router in a room with everyone else's routers. But that doesn't mean they will "peer" with you. Peering is a dark topic on the Internet. Many larger ISPs have hundreds of "peering agreements" with other ISPs. Some large ISPs have fairly restrictive policies on who they will and won't peer with. This is all a bit of a good old boys' club attempt to erect some barrier to entry so that it is easier to be their customer than be their competition, at the same time providing a nodding salute to reality that to have an Internet, they must interconnect. But peering is a pretty complicated issue. There are some further complications regarding transit, and who carries who's packet where and why, which rather muddy the peering issue.

Generally, there are no settlement charges between peers. They simply agree to exchange traffic. And if you are at a NAP with no peering agreements, you don't exchange much traffic at all. DEC is not precisely operating their own backbone. What you probably read referred to their development in Palo Alto of a kind of additional NAP. It is a very nice equipment room where you can connect equipment and a number of ISPs are using it as a convenient place to interconnect. The $5200 is a charge to put equipment in a rack in this room, and connect it to the network there. They do not involve themselves in peering issues at all.

You might go back to that fall directory of ISPs and reread the section on Internet architecture. It's rather gathering a following as the definitive work on how the Internet really works circa 1996. But briefly, the economics of the Internet work more on access to and bandwidth provisioning, and few charging mechanisms exist to track and account for data at the packet level.

Jack Rickard

◆ ◆ ◆

Jack, I was browsing some of your back issues that I have here in my office, yes we do find them a very useful resource, when I came across a reply from you saying that you had gone through several PCMCIA modems.

I too live on a laptop, and one day when putting the laptop away, popped out the modem card, a Megahurtz X-Jack 28.8 and slipped it into my shirt pocket. When I got home, I shucked of my shirt into the laundry basket not remembering the modem. (Doh! Stupid me!)

Yes, I put the shirt in the wash, modem and all. It was only after the full wash cycle had completed that the modem was discovered, leaking water!

Well, I drained it and thought "that's the end of that then" as some brown liquid came dribbling out. I left it for a month sitting on top of my TV meaning to chuck it out.

A month later, feeling bold (and I guess a bit stupid!) I decided to try it out. Needless to say it is STILL WORKING even today as I write this! I guess that the point of this letter is to offer kudos to Megahurtz for an excellent product, that even can survive a wash!

Klean computing and on-line fun to you and all your readers!

Ian Worrell
CaribNet
http://www.carib.net

KIDS - DON'T TRY THIS AT HOME. *I'm glad it worked out for you Ian, and it is an impressive testimonial for MegaHurtz. However, I have had at least four people describe for me a more depressing state of events with laptops and PCMCIA cards. They had modem failures that trashed their PCMCIA card socket, and in one case the laptop totally. If a PCMCIA card fails, it should be easy enough to obtain a replacement and go on down that information highway. But if you blow up the socket, and it apparently is pretty common, then you're out of commission with that laptop nearly enough. I would not have had the cajones to attempt your experiment.*

But all's well that ends well I guess. I'm always intrigued by these stories of recovering data from a laptop that was dropped three hundred feet to the ocean floor, THEN was burnt to a crisp in a hotel fire, and then was dropped seventy feet to pavement, then shot, stabbed, and raped in a parking lot. But in the end they got their data off the hard drive slag somehow. As for me, I can break one simply by snarling at it - and usually lose several articles for the next issue that must then be rewritten.

Thanks for writing.

Jack Rickard

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SEARCH ENGINE COMMENTS

Jack:

Here are some comments and pet peeves about web search services such as Infoseek and Altavista.

It seems to me that the web search engines could be improved by allowing web site developers to supply more information in our web pages to refine the products of a search. This could easily be done by expanding the use of "meta" tags now used to provide non-displaying keywords to be used by search algorithms.

For example, a meta tag for location eg: (`meta name="location" content="Washington, Baltimore, Maryland"`) could be used to search for say accountants in the Baltimore/Washington area without picking up pages about George Washington or Lord Baltimore.

A category tag could also be used to refine search results such as: meta names="category" content="Business and Economy /Companies/Accountants"This would guarantee that you would get pages that were about accountants instead of pages that happened to contain the word accountant.

A tag could be used to definitively indicate that the page has item(s) for sale. A tag could be used to indicate that the page is a home page. A tag could be used to indicate that the page is not to be indexed to
supplement robots.txt.

A pet peeve about search engines is that they frequently return pages with no title. Now I ask you, what is the chance that a page with no title is going to have useful information. At the very least the algorithm should put "no title" pages last.

I get the impression that the reason the search services are not doing something like expanded tags is that they don't trust content providers to not abuse the system. But of course page developers can already abuse the system by rigging keywords, etc.

I think your magazine is great — but you should soup up your web site. We would be glad to help <grin>.

Ted Goldsmith
Ted@azinet.com
AZINET Business Internet Solutions

Ted:

I agree that the current state of search engines is abysmal. For a brief and shining moment, they were terribly useful and you could find almost anything on the web within just a few minutes. But they are currently nearly useless. Yahoo has become a parody of itself and their draconian foot dragging regarding the addition of URL's is abominable. Alta Vista, at the other extreme, typically generates 20,000 hits from any keyword. Narrowing the world down to a mere 20,000 things to review manually doesn't quite accomplish the task. More advanced boolean searches yield unpredictable results and are a bit fuzzy it seems to me.

We are seeing a never ending progression of new search engine additions. Some are thematic in that the entire search engine is devoted to a single more specialized area. Others are going for the categorical menu presentation.

Ultimately, following the migration of all things online, this has to all move to the end users desktop. This has already happened to some degree by moving search to the tool bar on the browsers. But I look for someone to develop a more intelligent search engine that runs as software on your computer and uses the output of perhaps several hundred online

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search engines as a resource. This rather removes the economic model of the search engines, since human eyes won't see their pretty screens and banner ads at all.

But your basic idea of adding a tag web developers could use to gain some control of how they appear in results is really quite sound, and wouldn't be terribly difficult to implement.

But ultimately entropy takes over. As more of the world appears on the World Wide Web, anything you search for will be buried in ever increasing mounds of also related things. Rationalizing all of that really requires an enormously more powerful computer than we can currently manufacture - a humanoid cerebral cortex capable of extracting intelligence from chaos and presenting it in readable form.

Oddly, people that can do that are somewhat difficult to find. I've lost three columnists to competing publications in the past month who are somewhat vainly I think seeking to capture some of that Boardwatch magic. But in each case, they have markedly raised the average intelligence/talent level of both their publication and ours by doing so.

It will be terribly ironic, I think, when a few years from now after the computer goes through a few more leaps in capability, the world becomes ever more connected, and information becomes even more ubiquitous, we ultimately come to the conclusion that the quickest way to find something out will be to ask one of the secretaries in the front office.

Jack Rickard

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COMPUTING FOR PEOPLE WITH IMPAIRED VISION

Jack,

New issues of Boardwatch Magazine tend to displace eating and conversation when they arrive. Great magazine! And wonderfully just ahead of new developments. However there is a big issue for computing which receives little coverage. Perhaps Boardwatch would consider sorting out the options and issues related to how computers and programs deal with the many forms of limited eyesight? While there are many other disabilities that should also receive attention, partial vision or impaired vision afflicts a huge part of the population. Anyone with glasses qualifies in some measure. There seems to be more attention given to how a blind person can use the computer than someone with not perfect vison.

With the increase in speed and graphic ability—sufficient for games, 3D and other virtual realities—it would seem reasonable that these same chips and programs would allow clear, crisp enlargement of text, icons, menues and graphics to make them easier to see, but they don't. The enlargement programs produce blocky, pixilated text and bit-mapped images whose distinctive shapes fast become lost. Whatever happened to display postscript? Or use of Adobe Type Manager to rasterize and smooth out characters on the desktop as well as in specific applications?

Another problem: being able to slow-down the scrolling and display so a person can follow the movement. Zipping from one corner to another leaves somebody with poor vision without any clue where they are, were or how they got there—like driving using scattered snapshots to understand the continuity of the road and land. Slowing down the rapid display is as important for some uses as is speeding it up for others. And how about using the synchronized stereo glasses to enable the computer to display alternate images tailored to the abilities of the left and right eye if they differ in their sensitivity to color, contrast or intensity? For that matter, how about incorporating the prescription for each eye into a program that then would correct the display program just as the prescription is used to create glasses? Are any of these things out there? LPDOS and MAGIC are inadequate.

As the baby boom ages there will be more and more people with sight problems using the computer. Baby boom or not, this is a huge market and social issue. It would be a big service if there could be a round-up or tough evaluation of this issue from time to time as the whole cyberspace universe evolves. If this has already been done, any direction to where the best and latest is presented would be much appreciated.

John Davis
JMDavis@aol.com

John:

Actually this hits pretty close to home with me. Unaided, while my own vision allows me to see 18-24 months into the future with good clarity, it is actually about 20/600 in the present time frame - legally blind. With contacts, I can actually correct to 20/20 rather easily. But in passing age 40, I now find I can't read close up very well either. I'm told this is somewhat inevitable as the focusing lens of the eye loses its flexibility at about that age. They call it baby-boomer eyes now..

After surveying all the relevant literature and looking at all the software programs on the market, I've discovered the solution. I use a pair of $9.95 magnifying glasses from Walgreens to read up close or fine print. What I need now is some sort of tracking database to tell me at any time where I left them laying last...

Jack Rickard

Jack,

A couple of things here. First, as you are aware, the Letters to the Editor section is a favorite among many who read your magazine. While Hakala's answers are very informative, he's not YOU. YOU are the reason I read EVERY letter to the editor you print. Your wit and sarcasm is just too much, and very enjoyable. Although now I have started playing a new game called "Guess who wrote the response" and every time I've been correct, so now the game is boring. I will continue to read the Letter to the Editor out of habit, but PLEASE come back. Please respond to more letters.

Next, full-blown kudos to you and the staff. I used to run a single line BBS when I was a kid, graduated college and put up WorldGroup and then added the ISP. I want to let you know that partly because of your magazine is why I am so successful today. While now there are many magazines out there that are trying to copy BW, they just can't. I've picked up a few here and there, but it's BW that I keep buying every month :)

The support you have given to BBS sysops saying how those are the type of people who will make the great customer service people and really know how to handle people with the Internet is definitely true. So for all those in Central New Jersey, we welcome you to visit mindpulse.com at 908-253-6300 for a couple of FREE hours to test out our system, speed, and service, all which have been, in part, spurred by BW.

lizard.lady@mindpulse.com
908-685-9494 Voice

Lizard Lady:

You asked, you got.

Mr. Hakala has moved on to greener pastures, and I'm in the throes of interviewing editors as I write this. But I've received several phone calls and messages about the letters section, and as a result, I'm back in full harness in any event.

I'm very pleased to learn of your progression from the early days to the current Internet Service Provider business and would love to think we played a small role in it. At times, I suspect that we've been drowned out completely in the noise of dozens of "new, improved, and more better" new publications from publishing companies with literally a billion or so in resource to back it up. It might be that the day of the one-horse Internet magazine is at a close.

That said, we're still in publication and working away at another issue of Boardwatch - now in our tenth year. The Directory is going to 6X distribution with this next issue, and most of my problems don't have much to do with survival, they are more relevant to making schedules and writing faster. It's rather a case of so much Internet, so little time.

In any event, thanks for the note. I'm back.

Jack Rickard

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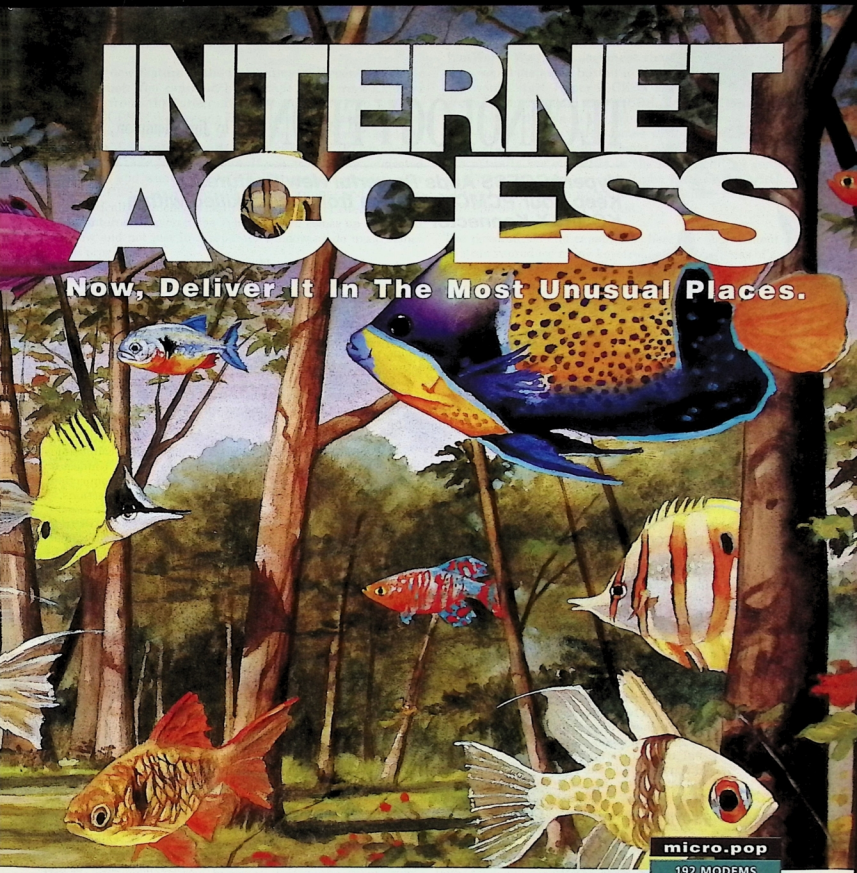

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TECHNOLOGY FRONT

by Jim Thompson
Western News Service

HyperACCESS Adds Powerful New Features; Keep Your PCMCIA Modem from being killed with a KONEXX Konnector

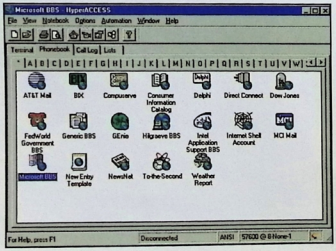
If you are looking for an easy way to make an online connection, HyperACCESS for Windows 95 and NT from Hilgraeve may be just what you need.

Jim Thompson is Managing Editor of Western News Service in Los Angeles, California. CompuServe: 72777,2577, MCI Mail: 321-4127, mailto: jim.thompson @wnanews.com

This 32-bit edition of HyperACCESS provides a wealth of features that make online communications easy, fast and efficient. Built on the solid foundation of HyperTerminal (which comes bundled with Windows95 and NT), HyperACCESS adds auto communications settings, high-speed file transfer, built-in VBScript and JavaScript (JScript) for automating communications and Web access.

"HyperACCESS fully exploits the capabilities of 32-bit windows and integrates easily and gracefully with Netscape Navigator and, even more so, with Internet Explorer," said Matt Gray of Hilgraeve, Inc.

HyperACCESS comes on a CD-ROM which includes the program for Windows95/NT and Windows 3.1, User and API (Application Programming Interface) manuals for Windows95/NT and Windows 3.1, Netscape Navigator 3.0, Netcom's NETCOMplete (which includes Eudora Lite email, MacAfee Web Scan, Vocal Tec Internet Phone Lite, and Storm EasyPhoto photo/graphics enhancer) and Internet Explorer 3.0. The package I received did come with a printed copy of the basic user's manual but, unfortunately, did not include the API manual. The installation process was fast and easy. I had no problems installing any and all features.



EASY-TO-USE AND FULL-FEATURED

The main terminal window (as well as all other windows) use the standard Windows95 interface so learning the basics is relatively easy. However, deciphering all of the features takes a bit more time and effort.

Convenient features include the ability to customize the quick-access buttons (add, delete, change icons, display large or small icons, etc.) and drag-and-drop operations for adding and moving phone book entries. The phone book (called notebook) has also been expanded to allow for storage of complete dialing and configuration information for unlimited entries. Besides numbers and connection information for your favorite BBS and/or commercial services, you can store Web addresses. You can set up individual notebooks for every users on your network or segregate groups of entries into separate notebooks. Like your familiar printed phone book, entries are alphabetized and lettered tabs make finding what you want easy.

Additionally, HyperACCESS allows you to create groups of communications settings called connections which setup a path that entries use to connect to remote systems. These entries can share connections and each entry can reference multiple connections.

HyperACCESS uses the Windows95/NT TAPI (telephony application programming interface) connections when you access a modem.

Making a call is as simple as double-clicking on a notebook entry. The user who is new to communications will like the way HyperACCESS simplifies the connection procedure by automating the process. There is no need to struggle with confusing terms like communications settings or terminal emulations — it is all automatic. A record function will even record your logon procedure and save it for future use. "HyperACCESS is truly easy to use. One indication of this is that the number of calls to our support technicians is lower per copy of our software than it is for competitors. I believe this is because our software is earlier to use," notes Matt Gray.

For experienced users there is no need to worry. HyperACCESS provides the ability to change or manipulate every possible setting allowing you to twiddle to your heart's content. Once connected, a panel with modem status lights will keep you informed of the status of your connection.

INTERNET INTEGRATION

The best new feature is the integration of HyperACCESS to the Internet. You can launch Netscape or Internet Explorer directly from the program to access the Web or use HyperACCESS for accessing Telnet sites. If you are in the program, you can click on a URL or Telnet address and HyperACCESS will establish a WinSock (TCP/IP) connection for you and take you to the site. If you are already connected to the net and want to make a Telnet connection, just enter HyperACCESS as your default Telnet terminal and it will be automatically launched when you go to a Telnet site. If you are using Internet Explorer, the Telnet session comes up in its own window and not just in a separate window as do most Telnet client programs.

"We are one of the first applications that implements the Document Object Model, which is the new model that Microsoft says all new software should adopt so they will fit into the in-place activation and active desktop environment that they tell us is coming," said Matt Gray. Having the Telnet session occupy the Internet Explorer window instead of a separate window is known as "in-place activation" and is available only in products that support the Document Object Model.

HyperACCESS supports all of the most popular transfer protocols including: Xmodem, Xmodem 1K, Ymodem, Ymodem G, Kermit, Zmodem, Compuserve B+, and their own proprietary HyperProtocol.

HANDY MESSAGE PAD AND GRAPHICS VIEWER

During chat mode with a remote system, or at any other time you want to prepare information for transmission, a handy message pad is available. The pad can be any size and placed anywhere. The message pad can be used like a word processor so you can paste in text from a file, and even check the spelling. When you are ready to send, just click the "send" button. The message pad is a convenient scratch pad area where you can prepare text instead of using an online message editor that may be difficult to use or unfamiliar.

For graphics there is a built-in viewer which supports most popular graphics formats. Graphics are automatically displayed while downloading. You can also use the graphics viewer as a stand-alone program to view graphics files.

The included Host program provides basic bulletin board features including sending and receiving files, and disk management operations (copy, delete, rename, mkdir, etc.). You can also set security levels to determine who has access and what features are available to an individual caller.

POWERFUL PROGRAMMING LANGUAGE

The HyperACCESS Application Programming Information (HAPI) language is extremely powerful. It can be driven from any object oriented or ActiveX scripting language. Most will probably us Visual Basic Script (VBScript) or JavaScript. You can also use any OLE Automation enabled language, such as Visual Basic for Applications (VBA), Visual Basic, or C+++.

Most will be content with using all this power to simply record a series of actions or a logon sequence. But there are many more possibilities here. Matt Gray described a demonstration they set up during Comdex.

"We demonstrated the use of HyperACESS from within WinWord. We had a document that had an attached macro that would display a button in the toolbar. Clicking the button would start HyperACCESS as an object in the background, which would call a BBS, download a graphic file, then embed the file in the WinWord document. All this was done through VBA which comes with Office95 and Office97 applications. When you automatic things within WinWord, you actually see our APIs in the macro editing controls of WinWord. So there is very tight integration with other ACtiveX or OLE automation compatible languages like Office95 and Office97," he said.

The possibilities and capabilities here are also without limit. You can reproduce many keystrokes with the press of a single key, wait for a certain time of day or a given length of time before executing a series of commands or calling a remote system, establish security procedures, and even create customized user interfaces.

Since HyperACCESS provides access to any OLE Automation enabled external programming language using HAPI, you won't have to learn a foreign (and perhaps difficult) script language. "Instead you can create programs using one of the most popular languages for program development for Windows 95 and NT, or you can use any other language that is compatible with your system and permits access to OLE Automation external functions." Also, since a programming interface for VBScript and JavaScript generation is provided, you can write programs, test and change them without leaving HyperACCESS. "Developers already familiar with another language or compiler can use their own development system and integrate their programs with HyperACCESS through HAPI without learning a new programming tool."

The one thing that I would like to see added to HyperACCESS is the ability to send and receive FAXes. Since virtually every modem sold today includes FAX capabilities, it seems logical that a full-featured program include at least basic FAX abilities. This addition, in my opinion, would make the product a complete data communications center.

When asked about this, Matt Gray responded, "We do get a lot of requests to add FAX, but we feel we can provide our users with more value in other ways than integrating FAX. We want to be the very best and most modern data communications product possible so we completely satisfy needs in that area instead of just delivering bulk over a broad spectrum of needs."

FUTURE ADDITIONS

Hilgraeve does have a number of additions to the product in the works. These include adding more terminal emulations, on-the-fly virus detection, on-the-fly unzipping of files, improving on the Telnet capabilities, and updates to UI to take advantage of new additions in Office97. They also plan to "add capabilities for one-to-one communications through the Internet, Intranet and modems which will include better file transfer, better chat capabilities and other features that are useful in one-to-one situation."

An upgrade that includes many of these additions will be available in February. Registered users can download a free patch to add these features from the Hilgraeve Web site (**http://www.hilgraeve.com**) or their BBS.

KONEXX Kouplers — Guaranteed Insurance Against Modem "Burn-Out"

For communicating on the road, Unlimited Systems Corporation offers two excellent products that will allow you to communicate no matter where you are or what the situation. As long as you have a telephone with an active line, the KONEXX products will have you operational in no time.

KONEXX Mobile Konnector

KONEXX has released a new version of its well-known Mobile Konnector which allows for easy, high-speed (v.34 compatible) connectivity to digital telephone systems.

Not only does this handy little device allow you to connect to virtually any digital telephone (including PBX and multiline phones) anywhere in the world, but it will also prevent the possibility of "burning out" your modem if you plug directly into a digital system.

The new connector is about the size of a bar of soap (3.8 x 2.9 x 1.1 inches) and holds two 9-volt batteries. Installation is fast and easy. Just plug the RJ-11 connector on the phone cord from your modem into the KONEXX Konnector, then plug the cable from the Konnector into the hand-set modular jack on the telephone and the hand-set connector into the jack on the Konnector and you are set to go. Once connected, you can communicate at speeds up to 33,600 bps. A four-position switch on the unit provides compatibility with virtually every phone system in the world.

According to KONEXX, a new "battery saver feature" draws power from the unit only when the modem is off-hook, providing "40+ hours of on-line time." If you run out of battery power, the unit is shipped with an AC-adapter.

I have used the previous version of the KONEXX Konnector for several years with excellent success. It has saved me countless hours of frustration and worry. The new one allows for faster speeds and longer battery life. This is a permanent part of my road kit. I wouldn't dream of leaving home without it.

KONEXX Koupler

For those real difficult situations, KONEXX also offers the KONEXX Koupler, an acoustic coupler that will get you connected no matter where you are or what kind of telephone system you are up against.

An acoustic coupler is basically a device that fits over the handset of the telephone via rubber "cups" to allow your modem to communicate with a remote site. This may sound like a "low-tech" approach, but sometimes this is the best and only solution to communicating on the road.

The KONEXX Koupler is made of high-impact plastic and designed to fit virtually any kind of handset thanks to the adjustable rubber cups and Velcro strap. The unit is about the size of a standard telephone handset (7.5 x 2.0 x 1.7 inches) and powered by a 9-volt battery which provides "up to 35 hours of on-line operation."

To use it, just plug the line from the Koupler into your modem then strap the unit to the telephone handset, making sure to cover the microphone and earpiece, with the Velcro strap. The KONEXX Koupler is V.34 compatible allowing for connection up to 24,000 bps.

I cannot count the number of times I have used this device. Not matter what the situation or where I am in the world, I can always count on my KONEXX Koupler. I have used it at airports, in foreign countries, over cellular phones and even on a radio connection aboard a ship. If you travel and need to communicate, you need one of these couplers. It's the cheapest modem insurance you can get. ◆

HyperACCESS Hilgraeve, Inc.
Genesis Centre
111 Conant Avenue, Suite A
Monroe, MI 48161
Tel: **(313) 243-0576**
BBS: **(313) 243-0645**
BBS via Telnet: **HBBS.hilgraeve.com**
(206.42.134.70)
http://www.hilgraeve.com

COSTS:
HyperACCESS for Windows 95/NT: **$129**

KONEXX Unlimited Systems Corporation
550 Oberlin Drive
San Diego, CA 92121
Tel: **(619) 622-1400**
http://www.konexx.com

Costs:
Konexx Mobil Konnector: **$149**
Konexx Koupler: **$149**

CONTACT INFORMATION

:-)

:-) ISP buys a network access server.

:-| ISP finds NAS not all

:-O ISP's customers don't always get fast,

:-(ISP can't promise users stability

(:-< ISP pulls all the hair out of his head.

:-D ISP hears about Shiva's award-winning

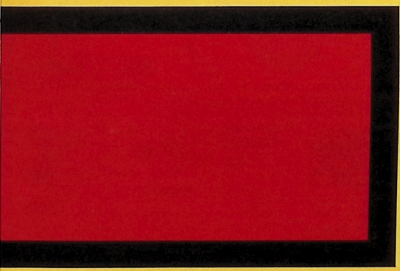
;-) ISP gets Shiva, grows hair back and

http://www

it's cracked up to be.

reliable connections.

under heavy call volume.



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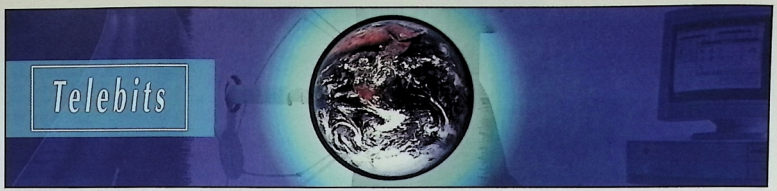

HOME WEB USE MORE THAN DOUBLED SINCE LAST YEAR ACCORDING TO LATEST PC-METER SURVEY

Home use of the World Wide Web has more than doubled in the last year, according to the most recent quarterly National Survey of Hardware Ownership from PC-Meter L.P.

Some 11.1 percent of U.S. households claim to have used the Web at home in the last month – a total of 11 million – as compared to 4.4 percent (4.3 million) a year ago. In addition, 13.9 percent claim to have used some type of Internet service in the last month, indicating that online services remain popular, as well.

The results are based upon responses to an October survey from a representative sample of 9,928 PC- and non-PC-owning households. Returned surveys are weighted and projected to represent all 98.7 million households in the United States.

According to the survey, the Web continues to be most widely used among higher income households, and those in which the householder has an advanced degree. Some 33.1 percent of households with annual incomes of more than $100,000 claim to have used the Web, as compared to 5.5 percent of those with incomes of $25,000 or less. Some 28 percent of advanced degree holders are Web surfers, as compared to 5.3 percent of those whose highest degree is from high school.

From a regional perspective, the Web is still most popular in the West, where 14.6 percent of households claim to surf, as compared to 11.2 percent in the South, 10.6 percent in the Northeast and 8.6 percent in the North Central census region.

PC-Meter provides audience measurement of World Wide Web sites and online services. It is the only research service providing unduplicated measurement of audience exposure ("reach") at Web sites, demographics on home-based Web surfers, and measurement of all sites on the Web.

The information is collected digitally via PC-Meter software, which is installed on panel members' home PCs and which has a patent pending. Unlike "site-centric" Web measurement systems, PC-Meter obtains information from a panel of 10,000 households that is demographically balanced to represent the population of U.S. PC owners. Test panels are also in place in Germany, France and the United Kingdom.

The PC-Meter Web measurement service comprises monthly data and a quarterly syndicated report. Customized consulting and reporting are also available. Subscribers to the PC-Meter Web Measurement Service include 20 major advertising agencies including the top-five revenue producers in the United States-Leo Burnett Company, J. Walter Thompson, McCann Erickson, DDB Needham, and Grey Advertising-and such diverse companies as Excite, InfoSeek, Viacom, Microsoft Corporation, NBC Interactive Media, Time-Warner and Yahoo!. For more information, visit the PC-Meter Web site at **http://www.npd.com/pcmeter.htm**.

VINTAGE EDISON RECORDINGS AVAILABLE THROUGH WEBSITE

February 11, 1997, marks the 150th anniversary of the birth of Thomas A. Edison. In commemoration of this event, Keystone Investment Corp. is releasing a rare cache of original Edison "Diamond Disc" recordings exclusively through the Internet website at **http://www.shoom.net/edison/index.htm**

According to Keystone President Frank J. Weinstock, visitors to the website will find historical and technical information about the production of the discs, a letter of authenticity from a leading expert on Edison Laboratory recordings, biographical information on Thomas A. Edison as well as additional related information.

Mr. Weinstock describes the discs as "rare Edison artifacts," and says he believes the discs will be of interest to historians, students of music and recording technology, Edison enthusiasts and collectors who may view owning the discs as investments that will increase in value over time.

Utilizing Internet technology to market the discs, says Mr. Weinstock, befits the spirit of Thomas A. Edison, who "devoted his life to integrating science and commerce."

The discs can be purchased directly from the website, or by calling Keystone Investment Corp. at **1-800-726-5851**.

Produced between 1910 and 1929, the discs are 10-inch celluloid platters. Each disc features approximately four minutes of music or speeches on each side. They are called "Diamond Discs" because they were designed to be played on gramophones that used diamond-chip styluses.

None of the records in the "Utah" collection has ever been played, and each is being sold in its original paper sleeve — a factor that greatly increases the intrinsic investment value of the discs, according to Mr. Weinstock.

The cache is called the "Utah Collection" because it was discovered in 1967 in a Utah warehouse where it had been stored and largely forgotten since the Great Depression. Soon after the discovery, the Diamond Discs were acquired by Mr. Don Cecala who has kept them preserved in an environmentally controlled storage facility, always intending to release them to the public in 1997, the sesquecentennial anniversary of the great inventor's birth.

In 1967, at the behest of Mr. Cecala, Walter L. Welch, curator of the Audio

Archives at Syracuse University and director of the Thomas A. Edison Re-recording Laboratories, certified the authenticity of the Diamond Discs. In his contemporaneous letter of authenticity, Mr. Welch described the condition of the discs — along with their original paper sleeves – as "remarkable" and the state of preservation of both the discs and the paper jackets as "astonishing."

Most of the discs feature musical recordings, notably including a classical piano performance by the composer Sergei Rachmaninoff (1873-1943) of his own "Pathetique." Other selections feature early jazz recordings as well as popular music of the day.

Of particular interest to historians, the discs also contain speeches by historical figures including President Theodore Roosevelt (1858-1919), the orator William Jennings Bryan (1860-1925), showman P.T. Barnum (1810-1891) and even Thomas A. Edison (1847-1931) himself.

Information on the Edison Diamond Discs can be found at the website, **http://www.shoom.net/edison** — or by calling Keystone Investment Corp.at **1-800-726-5851.**

UUNET BUYS 150 ASCEND MAX TNT UNITS FOR DIAL-ACCESS

UUNET Technologies has purchased and begun installation of some 150 MAX TNT remote access servers from Ascend Communications, Inc. in a major upgrade to UUNET's dial-access architecture. The MAX TNT is Ascends high density server allowing up to 672 dial-up ports in a single unit, and up to 4032 dial-up ports in a single rack at a cost of approximately **$600** per port. It also supports ISDN callers and 56/64 Kbps frame relay connections concurrently. It is currently the highest density dial-access server available. The deal is estimated to be over $50 million in architecture investment by UUNET.

"We expect the MAX TNT to more than triple the pace of our deployment," said David R. Boast, vice president of the Dial-Access Network for UUNET. "The new architecture provides the high-density modem capability needed to keep pace with the exponential growth of dial-access services and to move ahead with new services for the Internet."

Although UUNET has largely moved away from providing dial-up services directly, the company has had a boom lately in providing wholesale dial-up infrastructure to other ISP's such as Earthlink that do the marketing and customer service necessary to serve as a dial-up Internet Service Provider. More info on UUNET Technologies is available at **http://www.uu.net**. More information on the Ascend MAX TNT is available at **http://www.ascend.com**. Ascend is headquartered at One Ascend Plaza, 1701 Harbor Bay Parkway, Alameda, California 94502. Phone:**800/621-9578**; Fax:**510/747-2300**; **e-mail:info@ascend.com**.

FCC APPROVES 5 GHZ WIRELESS DATA

In the first week of 1997, the Federal Communications Commission voted 4-0 to approve 300 MHz of spectrum in the 5 GHz range for unlicensed National Information Infrastructure devices. According to Dick Smith, chief of the FCC's Office of Engineering and Technology, the new U-NII band will allow devices to transmit data at speeds of up to 20 Mbps over areas of up to 6 miles without a license.

The NII Band was originally proposed by Apple Computer. A consortium titled the Wireless Information Network Forum, made up of companies such as Motorola, Lucent Technologies, Nortel, and IBM joined the fray and there was a bit of a philosophical battle over whether NIIBAND should be used for local wireless networks within a building or campus, or whether it should allow sufficient power for point to point communications.

The FCC decision/report was issued as FCC 97-5 with regards to FCC-96-120. It would appear to offer a little something to everyone. In the 5.15 to 5.25 GHz band, power is limited to 200 milliwatts – essentially indoor communications within a single building. The 5.25 to 5.35 GHz band would allow broadcast powers of up to 1 watt – sufficient to cover a small campus or neighborhood. The 5.725 to 5.825 GHz band would be restricted to 4 watts – typically sufficient to cover a 6 mile radius.

Users must be willing to accept whatever levels of interference currently exist from commercial uses of this bandwidth. But the decision frees up companies such as Lucent and Motorola to develop devices to connect personal computers in a local region using wireless technology at data rates some 13 times faster than today's 1.544 Mbps T-1 leased lines. This potentially opens the door to high speed data access to classrooms, hospitals and of course to end users of very local Internet Service Providers. And given the unlicensed nature of the bandwidth, it could lead to reasonably low cost hardware to accomplish this. More at **http://www.fcc.gov**.

NORTH AMERICAN SOFTWARE SALES FLAT IN FIRST THREE QUARTERS OF 1996

Industry Records Decline of 19 Percent in Q3 '96 Sales Over Q3 '95

The Software Publishers Association (SPA) announced today that revenues from computer application software in the US and Canada reached $2.4 billion in the third quarter (Q3) of 1996. This figure represents a 19 percent drop over

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Cyclades®-PathRouter
TCP/IP Router (Frame-Relay, PPP, X.25)

The Cyclades-PathRouter comes with one Ethernet LAN port, two WAN synchronous ports (one T1/E1, one optional 56/64 Kbps), one high-speed asynchronous port (230 Kbps), full TCP/IP protocol, Frame-Relay, PPP, SNMP, dial-on-demand, dial back-up, PAP, CHAP, filtering capabilities (packet and service), and GUI (Graphic User Interface) configuration.

Cyclades-PathRouter also uses Flash Memory for painless software upgrades.

Cyclades®- PathRouter

Other Products Available from Cyclades

High Performance Intelligent Multiport Cards

$99* (ISA Card) List Price: $216

$199* (ISA Card, Cables Included) List Price: $259

$399* (ISA Card, 16-port DB25) List Price: $749

$499* (PCI Card, 16-port DB25) List Price: $958

$399* (8-port DB25 PCI Card, Octopus cable included) List Price: $695

Access Servers

$999* (8-port Terminal Server) List Price: $1368

$1199* (16-port Terminal Server) List Price: $1618

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the same period last year but does not reflect an overall drop in software sales when compared with other years. The release of Windows 95 in the third quarter of 1995 resulted in a huge increase in shipment revenues. SPA reported combined Windows sales of $2.3 billion in Q3 '95; today's announcement shows combined Windows sales of $1.9 billion for Q3 '96. As a result, the declines in the Q3 '96 reporting are distorted by high sales recorded in Q3 '95.

However, the year-to-date growth rates do reflect an uneven third quarter this year. Revenues from DOS applications continue to plummet, dropping 43 percent over the same period last year, while Macintosh sales dropped 36 percent and Windows applications dropped 18 percent.

As a result of comparative revenue decline for Q3 '96, the first three quarters of 1996 accumulated $6.9 billion, down 1.1 percent from the first three quarters of last year, so flattening growth in overall software sales. For the year-to-date period, revenues from Windows applications held on to a 3.3 percent increase over 1995, while DOS application sales continued their rapid decline, dropping nearly 42 percent. Despite dropping 21 percent in the first three quarters, Macintosh application sales have declined less this period than they did in the equivalent period last year, due to good quarter-over-quarter 1996 sales. This information is available at the SPA web site **http://www.spa.org/research**.

WORLDCOM/MFS MERGER COMPLETED

WorldCom, Inc. of Jackson Mississippi announced December 31, 1996 that the merger between WorldCom and MFS Communications Company, Inc. (MFS) has been completed and will be effective as of 11:58 p.m. eastern standard time.

As a result of the merger, each share of MFS common stock will be converted into the right to receive 2.1 shares of WorldCom common stock. Each share of MFS' Series A 8% Cumulative Convertible Preferred Stock will be converted into the right to receive one share of Series A 8% Cumulative Convertible Preferred Stock of WorldCom. Each share of MFS' Series B Convertible Preferred Stock will be converted into the right to receive one share of Series B Convertible Preferred Stock of WorldCom. In addition, each depositary share representing 1/100th of a share of MFS Series A Preferred Stock will be exchanged for a depositary share representing 1/100th of a share of WorldCom Series A Preferred Stock.

Upon effectiveness of the merger, the Board of Directors of WorldCom will consist of the following individuals: Carl J. Aycock, Max E. Bobbitt, R. Douglas Bradbury, James Q. Crowe, Bernard J. Ebbers, Francesco Galesi, Richard R. Jaros, Stiles A. Kellett, Jr., David C. McCourt, John A. Porter, Walter Scott, Jr., John W. Sidgmore, Scott D. Sullivan, Michael B. Yanney and, in lieu of Clyda Stokes Rent, who was unable to serve, Lawrence C. Tucker.

According to Bernard J. Ebbers, president and chief executive officer of WorldCom, the combined company will do business under the name WorldCom. Ebbers stated, "This business combination has created one of the world's premier business communications companies, blending a full range of local, long distance, international and Internet-based services. As a result of the merger, we have an exciting opportunity to increase revenue and customer retention by offering this unique combination of services through a combined sales force of nearly 3,000 professionals. In

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Microcom's New ISPorte Delivers High-End Rack Modem Functionality at Low-end Prices. Microcom's ISPorte™ is a high density rack modem system that obsoletes other rack systems in its price range. The ISPorte, with its unique quad modem architecture, provides 64 ports in a 7" x 12" x 17" chassis. Other rack modem systems are limited to 16 ports per chassis.

In addition, the ISPorte provides high-end rack modem features including Microcom® MODEMWARE™, our award winning, carrier certified modem firmware, Modem Management, Mass Firmware Download, Hot Swappable modems, and a Digital Upgrade dual T1/E1/PRI card.

These features, combined with a modular design and scaleable architecture, make the ISPorte the most cost effective rack modem solution for your LAN, Terminal, and ISP server applications.

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addition, we expect to achieve significant cost savings from reduced line and access costs, as well as the elimination of duplicate capital spending programs."

WorldCom is a leading provider of integrated long distance and local telecommunications services, offering domestic and international voice, data, Internet and video products and services to business customers, other carriers and the residential market. The company operates a nationwide digital fiber optic network in the United States and has worldwide network capacity. Its World Wide Web address is: **http://www.wcom.com**. The common and depositary shares of WorldCom trade on the Nasdaq National Market under the symbols WCOM and WCOMP, respectively.

MFS Communications completed the acquisition of UUNET Technologies, widely regarded as the first commercial Internet Service Provider, in August 1996.

PSINET SELECTS ASCEND'S GRF 400 IP SWITCHES TO ALLEVIATE POTENTIAL INTERNET BOTTLENECKS

Ascend Communications, Inc., (NASDAQ: ASND) has announced a multi-million dollar agreement with PSINet, Inc. (NASDAQ:PSIX), one of the largest Internet service providers, for the national deployment of Ascend's GRF 400 Internet Protocol (IP) switch. PSINet will installing the GRF 400 in place of its existing routing infrastructure, which is expected to near capacity by late 1997. PSINet has more than 230 points-of-presence (POPs) in North America and over 350 POPs worldwide.

Announced in September 1996, The GRF 400 is the first product to be introduced by Ascend's recently-formed High Performance Networking Division (formerly NetStar, Inc.), based in Minneapolis, Minnesota. Ascend completed the acquisition of NetStar last August to obtain this technology. The GRF 400 is a high-performance IP switch that lets carriers and ISPs cost-effectively provide network access and backbone services. Using a unique architecture that tightly integrates switching, route management, and high-speed distributed IP packet forwarding, the GRF 400 sets the standard for high-performance networking. Combining its Layer-3 switch with intelligent IP forwarding media cards, the GRF 400 delivers performance of up to 2.8 million packets per second.

"We have used Ascend MAX access switches for years for the access portion of our network and are now bringing Ascend products into our backbone as well," said William L. Schrader, chairman, president, chief executive officer and founder of PSINet. "The GRF 400 is, by far, the most sophisticated IP switching technology I've seen for the Internet backbone environment. By installing the GRF 400, we expand our relationship with Ascend and make significant strides in backbone switching.

"Ascend's GRF 400 has the ability to forward IP packets at full line speeds while maintaining a route table of 150,000 routes, and with its scaleable architecture, the GRF 400's forwarding capacity increases as you add modules. Its high-throughput, linearly scaleable architecture and fully distributed routing capability make the GRF 400 a perfect match for PSINet," said Mark Fedor, director of engineering at PSINet. "The high-performance routing of the GRF 400 and its ability to handle the demands of today's Internet backbone environment make it the best choice for PSINet's high- performance network." PSINet's web site is at **http://www.psi.net**.

Ascend is headquartered at One Ascend Plaza, 1701 Harbor Bay Parkway, Alameda, California 94502.
Phone:**800/621-9578**; Fax:**510/747-2300**;
e-mail: info@ascend.com.
http://www.ascend.com.

DIGEX TO TEST CISCO TAG SWITCHING

National backbone operator DIGEX has announced plans to work with Cisco Systems to integrate and test Cisco's most advanced routing and switching technology and to work with Cisco to enhance the technology's performance and scalability. By implementing an end-to-end network system from Cisco, DIGEX can deploy consistent network services made possible by Cisco IOS(tm) software platforms.

"Our relationship with Cisco translates into a competitive advantage for our customers, all of whom rely on the Internet as a business tool," said Clyde Heintzelman, Chief Operating Officer of DIGEX, Incorporated. "Tomorrow's Internet will be challenged more than ever by the demanding applications of corporate America. DIGEX is committed to providing the national network backbone that will most effectively serve those applications."

Among the new routing technologies being evaluated is "Tag Switching," a multilayer switching technology for scaling router and switch backbones. Tag Switching enables routers to more efficiently manage traffic on the Internet and corporate Intranets. The Tag Switching initiative is among the first projects through which DIGEX and Cisco network engineers will collaborate to ensure that the next generation of Internet technology meets the needs of business customers.

"Tag Switching is the latest in a series of Cisco innovations for scaling all aspects of corporate and service provider networks," said Don Listwin, Cisco's Senior Vice President of Cisco IOS software and market development. "The relationship between DIGEX and Cisco will offer customers scalable strategic platforms and a distinct advantage in today's Internet marketplace."

"DIGEX is very interested in evaluating Cisco's new Tag Switching technology," said Ed Kern, Vice President of Network Services at DIGEX. "We believe such techniques offer the promise of much greater scalability and functionality for next generation service provider networks. We will also work with Cisco to develop a common standard at the IETF for such mechanisms."

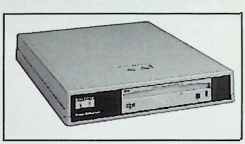
Tag Switching assigns a label or "tag" to packets traversing a network of routers and switches. In a conventional router network, each packet must be processed by each router to determine the next hop of the packet toward its final destination. In a Tag Switching network, tags are assigned to destination networks or hosts. Packets then are switched through the network with each node simply swapping tags rather than processing each packet. Tag switching can both help service provider networks scale with the exponential growth of the Internet, and also add new traffic management capabilities to such networks. The DIGEX Gold Ring(SM) national fiber optic network consists of a series of dedicated, clear channel DS-3 fiber-optic rings linking 36 major U.S. metropolitan areas. The DIGEX network was designed to provide the highest levels of speed and reliability. DIGEX points of presence (POPs) are high-speed DS-3 and 100% redundant (no "stub cities"). In addition, the network carries only IP traffic.

Headquartered in suburban Washington, D.C., DIGEX (NASDAQ: DIGX) is a leading independent national Internet carrier focusing exclusively on business customers. DIGEX offers a comprehensive range of Internet solutions, including high-speed dedicated business connectivity, corporate Web site manage-

ment services and other network products. The DIGEX Gold Ring(SM) national clear channel redundant DS-3 fiber network provides highly reliable service for mission-critical Internet applications. Company news and product/service information are available at World Wide Web site**http://www.digex.net**.

Cisco (NASDAQ:CSCO) recently announced first quarter 1997 sales of $1,435 million, up 79% from the $798 million sales in the same quarter 1996. More at **http://www.cisco.com**.

CISCO DELIVERS WEB PUBLISHING AND VIDEO DISTRIBUTION SOLUTIONS



Cisco Systems has introduced the Micro Webserver(TM), a turnkey network appliance that gives customers a simple and cost-effective way to share Web site information via the Internet and intranets. The company also announced the availability of Cisco IP/TV, a software suite, for real-time network video distribution over existing intranets and the Internet.

The Micro Webserver is an easy-to-use, standalone hardware product ideal for small businesses, branch offices and large enterprises that want to publish Web pages and share information via intranets. For Internet service providers (ISPs), it presents a plug-and-play Web server solution for customer premises. The Micro Webserver is also well suited for the following applications: network documentation server and standalone kiosks.

Cisco IP/TV is a leading standards-based Multimedia networking product, developed by Precept Software, that allows video and audio to run on existing IP packet-switched networks and over corporate intranets and the Internet. Together with Cisco IOS(TM) software features, Cisco IP/TV brings the power of live and programmed video and audio communications to a host of applications, including distance learning, employee training and telemedicine.

"Networking technology is adapting quickly to the changing needs of end users and corporations in response to the tremendous potential of the Internet," said Christine Hemrick, vice president of marketing for Cisco's Internet Business Unit. "One example of this innovation is our newest network appliance, the Micro Webserver, which is targeted at making it easier for small businesses, ISPs and enterprise customers to use the Internet and Web technology for productive business purposes."

Simplifying intranets the Micro Webserver eliminates the existing complexity of today's servers by offering an "all-in-one" solution customized for easy installation in minutes. With the Cisco Micro Webserver, users can build "mini" intranets for simple information access. When used with a CD-ROM player, the Micro Webserver provides access to corporate publications, product documentation and databases published in HTML format. The Webserver interfaces with the Netscape or Microsoft Internet Explorer browser and has a removable Iomega Zip Drive which provides 100 MB of data and application storage.The MicroWebServer is available at **$995**.

Cisco IP/TV employs multicasting - a form of information distribution with only one real-time stream of data for each program transmitted by the network to users who have chosen to "tune in," saving precious network bandwidth. IP Multicasting is supported by Cisco and all other major network equipment providers and is readily available on enterprise intranets.

Users are ensured seamless interoperability of Cisco's new solution through its support of IP Multicast and all other current multimedia standards under consideration by the IETF. These standards include the Real-Time Transport Protocol (RTP), a mechanism for carrying video and audio over IP networks. Future releases of Cisco IP/TV will also support Resource Reservation Protocol (RSVP), which prioritizes various types of network traffic for bandwidth intensive multimedia applications. RSVP support will also be available as part of Cisco IOS software which ensures robust, reliable internetworks by supporting the multimedia requirements of both LAN and WAN protocols.

Cisco IP/TV brings real-time video and audio broadcasting to Windows 95 and NT users over existing data networks. This suite of software includes three product components, including the IP/TV Program Guide which provides a listing of the available video and audio programs. Installed on each Windows-based PC, Cisco IP/TV Viewer enables users to view their selected program, while IP/TV Server transmits the program according to specified parameters, including start time.

IP/TV Starter Kit (Server, Program Guide, and 5 Viewers) is priced at **$3,500**. Additional viewers are **$400** each or **$9,000** for 25, rather restricting the ultimate acceptance of this video distribution system on the Internet.

Cisco Systems (NASDAQ: CSCO) is the leading global supplier of enterprise internetworking solutions, including routers, LAN and ATM switches, dial-up access servers and network management software. These products, integrated by the Cisco IOS(tm) software, link geographically dispersed LANs, WANs and IBM networks. Cisco news and product/service information are available at World Wide Web site **http://www.cisco.com**. Cisco is headquartered in San Jose, CA.

LUCENT TECHNOLOGIES DEMOS 56 KBPS MODEM TECHNOLOGY;

The Microelectronics Group of Lucent Technologies announced two new customers for its 56-kilobit-per-second (kbps) modem technology, which it demonstrated at the Consumer Electronics Show at the Sands Expo & Convention Center in Las Vegas on January 9.

Compaq Computer Corporation, the world's largest PC manufacturer and Hayes Microcomputer Products, a leading modem manufacturer, both announced today that they plan to have products incorporating Lucent Technologies' 56-kbps modem chip sets on store shelves in the first quarter of 1997.

Because users can only achieve 56-kbps connection rates when modems are compatible at the end user's site and at the Internet service provider's central site. Lucent has taken an active role in unifying the communications and computer industries behind an interoperable 56-kbps protocol. Last November, Lucent reached an agreement with Rockwell Semiconductor Systems to make their respective 56-kbps modem technologies interoperable.

Since this agreement was reached, more than 400 computer and communications companies - including Compaq Computer Corporation, Toshiba Corporation, 3Com, Cisco Systems, Hayes Microcomputer Products, Hewlett-Packard Company, CompuServe, and UUNet Tech-

nologies - have announced that they will support the new Lucent/Rockwell interoperable protocol called K56flex(tm).

"Lucent is committed to reducing confusion in the market and simplifying faster connections to the Internet," said Bob Rango, general manager of modem/multimedia applications for Lucent's Microelectronics Group. "For this reason, the company has taken a leading role in enlisting a vast majority of the world's modem and PC manufacturers as well as 75% of remote access server (RAS) equipment manufacturers to support the K56flex protocol."

In addition to driving widespread acceptance of the K56flex protocol, Lucent has dedicated a leading research and development team to setting industry benchmarks for analog modem technology. Lucent's renowned Bell Labs developed the company's 56-kbps technology to not only download information at top speeds but also uniquely upload data to the Internet at 40 kbps.

Lucent's modem technology can also operate in a symmetrical mode, which transmits data at 45 kbps in both the downstream and upstream directions, a capability that significantly improves applications requiring fast symmetrical rates such as Internet telephony and videoconferencing. "The faster uploading speed and symmetrical modes of Lucent's modem technology are faster than any other on the market." Said Rango.

To ensure that user investments will be protected as standards for 56 kbps evolve, Lucent has designed its modem technology so that it is software upgradeable. That means that modems can be upgraded by downloading software via the Internet rather than by buying new equipment. Lucent 56-kbps modem technology is backwards compatible with existing 28.8-kbps and 33.3-kbps modem technology.

"56-kbps modems should encourage the growth of the Internet into a more sophisticated multimedia environment," said Rango. "Whereas users of 28.8 modems will sometimes pass up high-bandwidth content because of long downloading times, 56-k net surfers will be more inclined to access data-intensive applications, such as video and audio files."

Lucent Technologies designs, builds and delivers a wide range of public and private networks, communications systems and software, consumer and business telephone systems and microelectronics components. Lucent was formed as a result of AT&Tamp;'s restructuring and became a fully independent company-separate from AT&Tamp; on Sept. 30, 1996.

Lucent's Microelectronics Group designs and manufactures integrated circuits, optoelectronic components and power systems for the computer and communications industries. More information about the company is available from its Web site at www.lucent.com/micro.

NETCOM EXITS $19.95 FLAT RATE PRICING

San Jose, California, December 19, 1996 — NETCOM On-Line Communication Services, Inc. (NASDAQ: NETC), a leading independent Internet service provider who has amassed over 580,000 subscribers in the dial-up arena, has announced it will be phasing out the $19.95 Internet access service tier that led the industry when introduced nearly three years ago. Instead, NETCOM will begin offering access-plus products to small and medium sized business customers and "productivity-seeking individuals." We think this means those who would be willing to pay **$30** per month. "We haven't forgotten our customers in this whirlwind of Internet provider announcement hoopla. Our customers not only want better delivery on the basics, like access and service, they want products that help them be more productive, " said David W. Garrison, NETCOM Chairman and Chief Executive Officer.

"NETCOM continues to focus on improving service, and because we know our customers want to be more efficient and effective, we are developing enhanced services that target our segment of the market with premium offerings at corresponding price points. This segment represents about 75% of our revenue today and they are seeking high quality relevant services like e-mail addresses personalized for their business, web hosting, and premium customer support, even if it costs a bit more."

NETCOM will continue to maintain its $19.95 basic access service for its existing customers, and for customers signing up prior to the Company's product and pricing announcement sometime in the first quarter of 1997.

NETCOM also announced that it expects to achieve domestic operating profitability (earnings before interest tax depreciation and amortization - EBITDA) in its fourth quarter, ending December 31, 1996. The Company has elected to manage its targeted annualized growth rate to a range of 40-50% in order to improve economic performance. This is being achieved by lowering spending to acquire subscribers, refining focus on business users and productivity seekers, and eliminating certain promotional pricing and distribution policies. As a result, the subscriber adds for the fourth quarter are expected to range between 20,000 and 30,000 new paid subscribers with a total client count of approximately 580,000. The Company also announced that negative cash flow for fourth quarter is expected to be less than estimated - under $20 million.

THE BEST INTERNET BOOK EVER PUBLISHED

O'Reilly & Associates is one of the strangest book publishers in the industry. They started by printing a hundred copies of a book on PERL programming and have since totally dominated publishing for obscure narrow niche topics related to UNIX, system administration, and the Internet. The niches have grown a bit in recent years to bring O'Reilly some notable success.

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President, Network Management Associates, Inc.

Dale Dougherty,
President, Songline Studios

Client/Server on the Internet

George Schussel,
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Mitchell Kertzman
Sybase

Robert Glaser
Progressive Networks

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They've just published the second edition of "DNS and BIND," their complete guide to the Internet's Domain Name System (DNS) and the Berkeley Internet Name Domain (BIND) software, the UNIX implementation of DNS. The new edition, by Paul Albitz and Crcket Lieu also covers using DNS and BIND with Windows NT. It's a complete update of this classic Nutshell Handbook, which has served as THE source of information on DNS and BIND for system administrators who manage domain or name servers.

DNS is the system that translates hostnames (like "rock.ora.com") into Internet addresses (like 192.54 .67.23). Until BIND was developed, name translation was based on a "host table"; if you were on the Internet, you got a table that listed all the systems connected to the Net and their addresses. As the Internet grew from hundreds to hundreds of thousands of systems, host tables became unworkable. DNS is a distributed database that solves the same problem effectively, allowing the Net to grow without constraints. Rather than having a central table that gets distributed to every system on the Net, it allows local administrators to assign their own hostnames and addresses and install these names in a local database. This database is automatically distributed to other systems as names are needed.

In this new edition of "DNS and BIND," the authors describe Bind version 4.8.3, which is included in most vendor implementations today. In addition, you'll find complete coverage of Bind 4.9.4, which in all probability will be adopted as the new standard in the near future.

In addition to covering the basic motivation behind DNS and how to set up the BIND software, this book covers many more advanced topics, including how to become a "parent" (i.e., "delegate" the ability to assign names to someone else); how to use DNS to set up mail forwarding correctly; debugging and troubleshooting; and programming.

Readers who have the first edition of "DNS and BIND," can get a 25% discount on the second edition—just call O'Reilly customer service at 800-998-9938 (in US & Canada) or email **order@ora.com** and mention code "dns2" when ordering the second edition. O'Reilly will ask readers to mail in the title page from the first edition when they order. DNS and BIND, 2nd Edition; Paul Albitz & Cricket Liu; 438 pages, ISBN: 1-56592-236-0, **$32.95**

WEB AUTHORING SOFTWARE MARKET STILL WIDE OPEN

While many companies are competing for dominance in the market for Web site design software, no clear leaders have yet emerged in the volatile market, according to data released by Jaffe and Soeder, a market research firm that focuses on Internet developments. The Los Angeles company specializes in investigative marketing and psychographics.

Larry Jaffe, president of Jaffe and Soeder, said although the races for Internet browsers and Web server software seem to have settled into three- or four-player contests, competition is still keen in the Web site design software market where conditions are fluid. "No product really came up as being the hottest thing," he said. "That's interesting because it shows that nobody has really attacked this market properly."

Noomi Jaffe, vice president for research at Jaffe and Soeder, said the survey results were tabulated from 233 webmasters, professional site designers and content creators nationwide, most using the Windows platform. She said most web authors are still coding HyperText Markup Language (HTML) tags the old-fashioned way, writing them out longhand using a plain text editor such as WordPad or Microsoft NotePad. Survey results showed that 33.4 percent of professional-level authors write their own HTML tags, hand-coding Web pages much as it has been done since the birth of the Web almost four years ago, she said.

Most professionals creating Web pages are not using a single product for all their site-creation tasks such as HTML coding, editing graphics, creating scripts and creating and compiling Java applets. Of those Web authors who use HTML editing software, HotDog from Sausage Software, an Australian company, had the highest usage rate at 20.6 percent. Netscape Navigator Gold, based on the Mountain View, California company's popular Navigator browser, earned a 14.6 percent response. Third place went to HoTMetaL Pro, produced by SoftQuad Corp. of Canada, with 10.7 percent.

HTML is the text-based system used to inform a Web browser or viewer program of the author's intentions for a document's appearance and formatting. HTML uses abbreviated cues, known as tags, to define size and style of type, insertion and placement of photographs or illustrations and many other traits of a Web page. Tags are placed directly into the text of a document between sets of angled brackets <like this>. They instruct the browser to re-assemble the document according to instructions contained in the tags.

Originally designed as an easy-to-use tool, HTML has evolved along with the explosive growth in Internet popularity. HTML has grown complex and arcane, Jaffe said, as new abbreviations have been added intended to increase the capability of HTML's tags. About 80 HTML tags are currently used, and new tags are continually proposed and added. To further complicate matters, some tags only work with particular browsers.

HTML authoring software, called alternately HTML editors or Web editors, are programs which allow an author to create documents correctly formatted for the Web without having to know and spell out HTML tags. The growth of the Web has seen a parallel growth in the need to produce HTML-tagged documents in the volume necessary for the ever-expanding medium. A proliferation of software has emerged for this task. Most of the large software companies, such as Microsoft, Adobe, Claris Corp. (Apple's software subsidiary), and many mid-size companies, such as Quarterdeck, InContext, Attachmate and Macromedia, have rolled out their offerings in this market.

While HotDog, Netscape Navigator Gold and HoTMetaL Pro took the first three places in the survey rankings, Microsoft's Internet Assistant, a converter designed to be used with their popular business software package Microsoft Office, got 9.4 percent. BBEdit, a Macintosh-only product from Boston-based Bare Bones Software, claimed 8.1 percent of respondents. HTML Assistant, from Brooklyn North Software Works of Nova Scotia, took 7.3 percent. Adobe Systems' PageMill garnered 6.8 percent. Ninth place went to Microsoft FrontPage with 6.4 percent. This stand-alone product was acquired by Microsoft when they bought out Vermeer Technologies earlier this year. Corel's WEB.Designer package rounded out the list with 5.1 percent.

Products mentioned in the srvey with a one percent or less response were HTMLed from Canada's Internet Software Technologies, HomePage from Claris Corp., critically acclaimed newcomer NetObjects' Fusion, GNNPress (originally NaviPress, developed by NaviSoft, now also known as AOLPress and distributed by America OnLine), WebEdit (originally developed by Spokane, Wash. programmer Kenn Nesbitt and recently acquired by LA software developer and distributor Luckman Interactive, Inc.) and Spider from Toronto-based inContext Corp.

Since many of the respondents gave multiple answers, the previous percentages may add up to more than 100 percent. Each percentage reflects the number of respondents that mentioned a particular product and not a percentage of the market as a whole.

Jaffe and Soeder is a high tech, interactice marketing firm founded in 1991. Their services include market research, survey design and execution, competitive analysis, marketing services and Web site, packaging and promotional materials design. Jaffe and Soeder's Creative and Interactive divisions have designed many award-winning Web sites and software packages. The company can be contacted at **(800) 664-3766**, or see their Web site at **http://www.jaffe-soeder.com**.

TCG ACQUIRES CERFNET SERVICES

Teleport Communications Group Inc. (TCG), a competitive local telephone company, announced during the second week of January that it will acquire CERFnet Services Inc. creating a new player in advanced telecommunications and Internet services.

TCG will acquire CERFnet from General Atomics and its affiliates in exchange for 2.1 million shares of TCG Class A common stock.

"This will be a powerful combination with compelling synergies," said Bob Annunziata, TCG's Chairman, President and CEO. "TCG will provide CERFnet's customer base with sophisticated telecommunications services, while CERFnet will provide TCG's customer base with equally high-quality Internet services. With CERFnet, TCG acquires one of the most technically advanced and financially sound companies in the Internet industry."

San Diego, CA-based CERFnet, one of the nation's oldest Internet Providers, serves more than 6,000 corporate and professional customers, including leading financial services companies, academic institutions, health care and entertainment companies, government services, defense contractors, utilities, major computer and software companies. Since TCG serves similar users in 57 major markets across the country, CERFnet will accelerate its nationwide business as its Internet services are packaged with TCG's complimentary telecommunications services.

Both companies also share a tradition of innovation and entrepreneurship, said Mr. Annunziata. "CERFnet's history, customer focus, corporate culture and successful financial performance closely parallel TCG's: Both companies are founders of their respective industries, both provide superior, innovative services to the same types of corporate users, both have grown quickly but prudently, and, perhaps uniquely, both are producing positive operating cash flows."

CERFnet is expected to generate preliminary operating results of **$1.8 million** of EBITDA (earnings before interest, taxes, depreciation, and amortization) on revenues of approximately **$9.3 million** for fiscal 1996, according to Pushpendra Mohta, CERFnet's Executive Vice President.

"The Internet business model has changed dramatically since we first participated in setting up the Internet in 1989," said Mr. Mohta. "The business of Internet access is moving closer to the wire. Demand for bandwidth continues to accelerate and facilities-based ISPs like CERFnet will have a distinct advantage in cost and reliability."

Mr. Mohta will assume the position of Vice President of Internet Services with TCG after the acquisition is completed.

"The people at CERFnet have been pioneers in developing, refining and perfecting Internet and Web technologies and services," said Mr. Annunziata. "Pushpendra Mohta has been one of the significant players in each evolutionary phase of the Internet since 1989 and will be a valuable addition to TCG's management team."

CERFnet was formed in 1989 by General Atomics as a founding participant in the National Science Foundation Network (NSFnet) that has evolved into the Internet. Today, CERFnet provides a full range of Internet-related services for corporate clients, including dial-up and dedicated Internet access, Web hosting and co-location services and Internet training.

CERFnet's nationwide backbone network, which uses redundant, high-speed DS3 (45 Mbps) links to accommodate high-volume traffic and ensure reliability, is scheduled to be upgraded to 155 Mbps in the first quarter of 1997. Currently, CERFnet provides customers with Internet access speeds ranging from 28.8 kbps to 45 Mbps over dedicated high-speed digital lines as well as through leading edge technologies such a Asynchronous Transfer Mode (ATM) and Integrated Services Digital Network (ISDN).

Mr. Annunziata noted that TCG's high quality fiber optic local networks, which have ISDN and ATM capabilities, are ideal for CERFnet's high speed dedicated access and switched links, and that these types of applications are examples of the strongly synergistic cross-marketing he expects between TCG and CERFnet after the merger.

TCG is the nation's largest and most experienced provider of competitive local exchange services for information intensive businesses. Through its fiber optic based networks, TCG currently serves 57 major markets, offering the most advanced private line, switched and data services. TCG recently announced plans to build eight new fiber optic networks in 1997 that when completed will raise the number of markets served to 65. TCG is traded on the NASDAQ National Market and is traded under the symbol: TCGI.

Additional information about TCG is available on the Internet at: **http://www.tcg.com**

CERFnet is one of the largest and oldest commercial Internet service providers for business in the nation. In addition to providing cost-effective, high-speed access to the Internet, CERFnet offers a complete range of Web hosting and related services to business.

More information about CERFnet is available on the Internet at: **http://www.cerf.net** ◆

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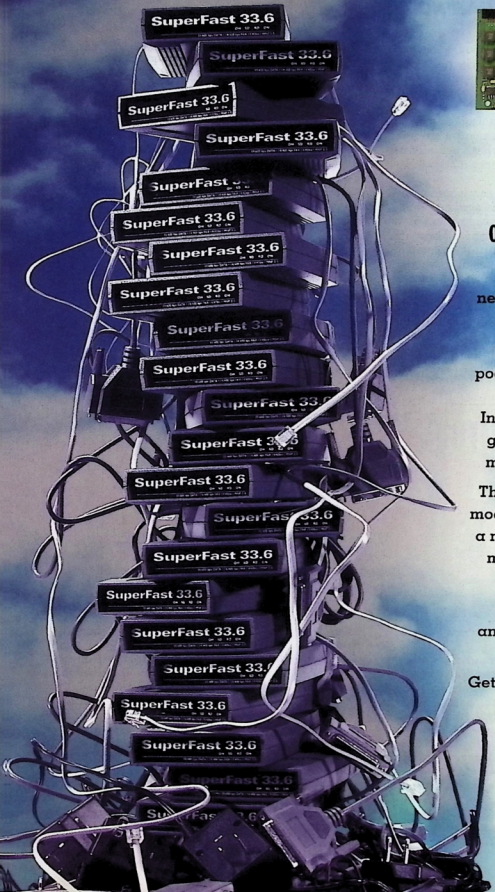

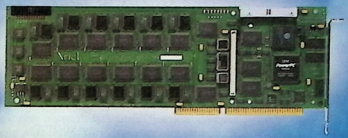

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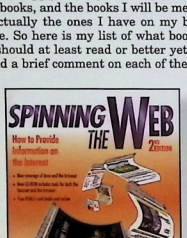
WEB SERVERS DISSECTED

by Michael Erwin

MIKEE'S WEB READING LIST

This month I am going to continue doing some cleaning. This time with books. So this is going to be a slight departure from the normal column that would be here. Most of the e-mail that I receive is on just a few topics. Two of the most common requests are, "What software do you use?" and "What books do you recommend?" Well this month I am going to give you an actual run down of what I actually use for crushed-pulp, ink-smeared reference material.

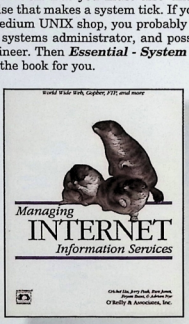
A great inspiration in my life was a gentleman named Sidney Thomasson, or to any of his students (a.k.a. Toads), Mr.T. Some of you might have known him as WB8FYI. He taught me something that I tell everyone in my lectures and classes. "This stuff is so complex, you can never remember it all. So remember where to look it up." Even though he was talking about electronics and he could remember everything, the phrase and concept still apply. As anyone that knows me can attest, I like books, and the books I will be mentioning here, are actually the ones I have on my bookshelf here at home. So here is my list of what books every webmaster should at least read or better yet have on the shelf, and a brief comment on each of them.



The first book for a new webmaster's shelf, is a couple of years old. the title is ***Spinning the Web*** by Andrew Ford. (ISBN 0-442-01996-3) It is a relatively small book by today's standards, only 227 pages. But it is clean and concise. It covers not only the HTML basics, but introduces you to some of the issues like bandwidth, server installation, administration, planning, security and dynamic documents. It is not a complete reference, but as you will notice, none of them are. This is a book I recommend, to people with Information Services experience.

The next book is ***Essential - System Administration*** by Aeleen Frisch. (ISBN 1-56592-127-5). This book may not be for everyone, but if you work with any flavor of UNIX, this book is a must. It truly covers the "essentials" that everyone who works with or will work with UNIX needs. There is not much in this book on HTML or web servers, but it covers the way UNIX works, IP networking, administration, file systems, system accounting, resource management. It also covers something most web masters leave up to someone else, backup and recovery.

If you are fortunate (or unfortunate) enough to work at a rather large shop, you probably understand that the systems administrator is not always around. More likely, you showed your boss your web site, and the boss said, "Oh, great, build us a web site!" Not only do you need to understand the basics of HTML, HTTP, SSI, SSL, and CGI. But you must also understand everything else that makes a system tick. If you are in a small to medium UNIX shop, you probably are the web master, systems administrator, and possibly the network engineer. Then ***Essential - System Administration*** is the book for you.



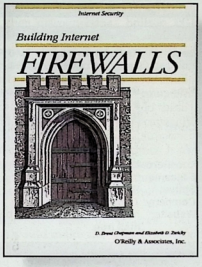
There is another book along the lines of ***Essential - System Administration*** that many of you might want to take a look at ***Managing Internet Information Services*** by Cricket Liu, Jerry Peek, Russ Jones, Bryan Buus and Adrian Nye. (ISBN 1-56592-062-7) This book covers all aspects of configuring, administering, and maintaining not only web servers, but FTP servers, WAIS, mailing list servers such as MajorDomo and Gopher.

For those of you who have only been around the net for a few years, you may have never encounter such a critter. That's because Gophers are slowly growing extinct. I loved them when that was all we had, but let us face facts. HTML/HTTP kicks Gopher's butt. They were a pain you know where, when compared to writ-

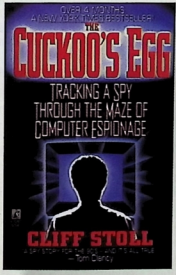
Michael lives in Huntington, West Virginia, with his wife Jacqueline and Paxi Baby (Jackie's Shar-Pei dog). He has designed, built and administered network systems for over 16 years. Mike has organized and documented his 600-megabyte bag of tricks, tools and voodoo on a CD-ROM entitled, "*The WebMaster's Resource.*" It is available for US$24.95, plus US$2.00 shipping in the United States or US$5.00 elsewhere; send check or money order to 320 36th Street, Huntington WV 25702-1632. Please allow 4-6 weeks for delivery. For more information mailto: **mikee @eve.net**

ing HTML. Think of Yahoo! and the other information directories kind of like Gophers. I can see the e-mail now, but you Gopher fans need to get over it. For the rest of you, you can see one of these endangered species. Use the following URL in your web browser: **gopher://gopher.tc.umn.edu/**

Since we were speaking of networking, you should check out ***Firewalls and Internet Security (Repelling the Wily Hacker)*** by William Cheswick & Steven Bellovin (ISBN 0-201-63357-4). This book is primarily for network engineers or network administrators. But it is a great read. Did I just say that, man, I guess I am a geek. ARRRRGGHHH!. Well if this book doesn't make you take a step back and think, nothing will.



Once you have read this book, and started applying ideas from it, you not only get paranoid, but you will start thinking more about security. At that point you might want to get a copy of ***Building Internet Firewalls*** by Brent Chapman & Elizabeth Zwicky (ISBN 1-56592-124-0). This book continues an excellent discussion of Internet security concerns.



And why so much concern for basic internet security? Well, if you have to ask, then you should read ***The Cuckoo's Egg*** by Clifford Stoll. This isn't a technical book, by any means. None the less, the book is a must read by anyone who works and lives by the Net.

Enough about security. Another area that always needs to be covered is CGI and SSI. Personally I always thought this area lacked useful reference material. So many of the books written today lack any depth. As a matter of fact, making that statement caused me to receive a challenge by a publisher to do a better job covering the CGI topic. Well, together with Jeffry Dwight and bunch of wonderful people, we wrote ***Using CGI*** (ISBN 0-7897-0740-3). Yeah, this is a shameless plug, but I am very proud of each and everyone of the **828** pages of the book. It covers a wide range of sub-topics of CGI.

If you are going to be working much with Perl and CGI, you need Shishir Gundavaram's book ***CGI Programming*** (ISBN 1-56592-168-2). This book includes all of the examples in Perl. But you will probably need to pick up the book "Programming Perl" by Larry Wall, Tom Christiansen & Randall Schwartz. (ISBN 1-56592-149-6). It covers everything I can think of when it comes to programming in the Practical Extraction Reporting Language, a.k.a. Perl. This book does not really discuss using Perl with CGI. But it and Gundavaram's book they make great reference companions.

Another area that I enjoy working with is new web technologies that are based on some type of standards. Early last year, I received what I initially considered a book titled "World Wide Web Journal," It was 735 pages of all kinds of ideas and thoughts from the World Wide Web Consortium, a.k.a. W3C. As I began reading this "Journal," I realized that these were technical papers presented at a W3C conference. This was great, most of these papers are on the Web. But as my boss puts it, "The Web and other forms of online documentation lack the "(in the) john factor." The journal is a great thing for seeing what the real movers and shakers of the Web are thinking about, trying or actually implementing. It is published quarterly - very usefully.

Those are the books, that I use most often for references. Not to mention my back issues of Boardwatch. Yes, I still refer to the back issues. I also take pride in the fact that my little library here at home is more complete than most corporate and public libraries. However, I do "recycle" the books that should be recycled. I don't even look at the "idiot's guide" or "dummies" type of books; they always contain too much fluff.

Yes all of these books cost money, but many of them are available at the public library. I do hate paying **$50**, **$60**, **$120** for a single book, and then when I get it home realize it doesn't contain as much useful information as I had thought when I made the purchase. But when I do find those rare gems, on my book shelves they go. I probably spend about **$200** bucks a month on various computer-related books. I not only realize this is a lot of money, but my wife Jackie is usually available to remind me in the event I forget. But I consider them part of the cost of my professional dues. You might want to check with your accountant on income-tax deduction strategies.

I can promise you one thing with these recommendations - you won't be throwing away money by purchasing any of the titles mentioned here. This is not an all inclusive list of what's on my shelf, but rather a list of must-haves to be effective in this business. You do however, need to keep an eye out for revisions and new editions. Sometimes I will keep the older editions around when the new editions have added useless fluff.

Well, till next month...◆

Michael Erwin
mikee@access.eve.net

CONSUMMATE WINSOCK APPS

by Forrest Stroud

Well, I've finally reached that point in my life when I can consider buying my first (and perhaps only) new car. Although I have often wondered whether or not I would ever make it to this point, now that I'm here, I plan on doing it right. If you're in the market for a new car or have been recently, I'm sure you know all about the pressure, uncertainty, doubt, and even fear that these two words — car dealership — inspire. But thanks to the Internet, getting in and out of a car dealership with the car you want and a few extra dollars to spare might not be so impossible after all. Here are the sites I've used to hone my negotiating skills and to learn what I need to know to have the upper hand on even the most pushy of salespeople. When you begin to consider buying your next car, be sure to check these sites out first:

Edmund's — **http://www.edmunds.com/**

Though not the prettiest auto website on the 'net, Edmund's has an amazing wealth of useful information for buying or selling new and used cars. Everything on the site is free, including dealer invoice prices, used car 'blue book' prices, car reviews, and a ton more. This site is flat-out awesome.

Microsoft CarPoint — **http://carpoint.msn.com/**

CarPoint makes up for Edmund's lack of aesthetic beauty and also offers an excellent supply of information, although the best material (Intellichoice reports) will cost you a few dollars. You can even buy your next car through Auto-By-Tel with CarPoint.

DealerNet — **http://www.dealernet.com/**

Looking to buy a brand new 1997 sports utility vehicle, sedan, or sports car? Then look no further — DealerNet is the perfect place to begin your search for the car of your dreams. While not as information-replete as CarPoint or Edmund's, DealerNet is a great site for finding dealerships in the U.S.

Kelley Blue Book — **http://www.kbb.com**

A great place to look for the latest information on new and used cars. Use this site to find the best price for your next car (negotiate up from the dealer invoice price) as well as what price to seek for your trade-in.

Toyota — **http://www.toyota.com/**

I just couldn't help but throw in my favorite car manufacturer. Toyota has an excellent web site with tons of information — they also were the first manufacturer to release on the 'net extensive information for their 1997 line of cars.

The applications reviewed here and many more are available on Stroud's Consummate Winsock Apps List, http://www.stroud.com and http://www.cwsapps.com.

Forrest H. Stroud is a recent graduate of The University of Texas at Austin. The Information Systems and Data Communications Management major is currently working as a full-time internet consultant in College Station, Texas. Stroud can be reached at mailto:neuroses@stroud.net.

TRANSOFT MAIL FOR WINDOWS 95

TMC Pro 3 now with PGP, Voice Mail, Message Templates, HTML wizard and more... Download link below!

Desc:	An Icelandic original, TMC Pro 3 is a solid mail client that offers impressive features including PGP
Pros:	Built-in PGP capabilities, auto-mail scheduling agent, easy to use, appeals to both novice and expert users
Cons:	Lacks some features found in other clients, expensive price tag relative to some of the competition
Location:	ftp://ftp.centrum.is/pub/TransSoft/
Filename:	tmc???.exe
Status:	Shareware $10
Company:	TransSoft, Ltd.
Website:	http://www.centrum.is/~bhg/tranmail.htm

Less than a year ago it was quite rare to find solid software for the Internet that had been developed outside of the United States or Canada. Recently, that trend has begun to change with contributions from the likes of Russia (AMSD Ariadna), Norway (Opera), Germany (UdiWWW), Japan (Becky Internet Mail), Austria (Alibaba), and the latest international hit, Iceland's TransSoft Mail. This Icelandic original is an outstanding client that, while lacking the great-looking interface of E-Mail Connection and some of the most advanced features of Pegasus Mail and Eudora Pro, definitely holds its own against the competition and even excels in some areas. TransSoft Mail Control, or TMC Pro as it is commonly referred to, is first and foremost designed to be both easy to learn and use for novice users as well as efficient and powerful for more advanced users. The client succeeds and exceeds expectations on both levels.

TMC Pro offers a short and simple series of introductory screens that will get new users up and running quickly. At this point, the novice e-mail user can begin sending and receiving messages on the 'net. This keeps the more advanced and often complicated features hidden from beginning users but just one short menu click away for power users. Novices will also love TransSoft Mail's custom help feature, which brings up a help bubble of text for all the icons and individual sections of the screen. Unfortunately, the custom help option is turned off by default, and because the toggle switch for turning the feature on is buried in the settings menu, many beginners will likely miss out on this extremely helpful feature. Another design flaw likely to bother both new and experienced users alike is the inability to create messages using the opening interface — in order to draft a new message, you have to first

click on the appropriate icon to bring up a specialized message composition screen. Normally this wouldn't be so annoying, but TMC Pro's opening screen presents a perfect interface for creating quick, short messages that lack the need for the extra space and advanced options made available in the message composition screen. Aside from these and a few other minor miscues, there's not a whole lot left to be desired in TransSoft Mail, especially when you consider its abundant set of features.

TMC Pro offers the standard fare of features that you would expect to find in any above average mail client, but where it really excels is in its showcase of features that you won't commonly find in even the best of e-mail clients. Excellent support for multiple users and multiple e-mail addresses, remote access control (for automatically dialing in to your provider, downloading new messages, and then disconnecting), built-in PGP (Pretty Good Privacy) facilities for sending secure messages, advanced filtering (including incoming and outgoing rules-based filters as well as automatic reply capabilities), return receipt options, and an automail scheduling agent (especially useful for sending out automatic replies when you're away from your computer) represent the best of TMC Pro's distinctive features. Add these to a solid collection of standard features like offline mail capabilities, background mail checking, MIME and UUENCODE support, a quick and efficient built-in spelling checker, an address book manager, and message previewing (for viewing message headers without actually downloading the entire message), and you get a client that is bound to appeal to even the most demanding of users.

Despite this impressive array of features, TMC Pro does lack some items that would make the client even more impressive, including Pegasus Mail and Eudora Pro's color-coded labeling capabilities and multitude of sorting options, Voice E-Mail's voice mail technology, and Pegasus Mail's advanced attachment capabilities (including BinHex support). Additionally, at **$50** TMC Pro faces an uphill battle against competition that offers more bang for the buck — while Eudora Pro can be bought for about the same price, both Pegasus Mail and E-Mail Connection are available for free, as is the freeware Eudora Lite client. TransSoft Mail has its work cut out for itself, but if the early releases are any indication of how this client will evolve, look for some amazing things to happen in the near future. Given its potential, don't be surprised if TMC Pro soon sports a feature-set unparalleled in its category.

PAINT SHOP PRO 4.0

Desc:	An excellent 32-bit graphics app comparable to Adobe Photoshop
Pros:	Amazing array of features, beautiful interface, extensive on-line help
Cons:	Some graphics programs out there are less expensive, but none offer as many features
Location:	ftp://ftp.jasc.com/pub/
Filename:	psp4?.zip
Status:	Shareware **$69**
Company:	JASC, Inc.
Website:	**http://www.jasc.com/psp.html**

Paint Shop Pro may well be the consummate exemplar of shareware applications, demonstrating that shareware clients really can compete with the big boys. Not only does Paint Shop Pro offer more than 90% of the features found in expensive commercial rivals like Adobe Photoshop, it packs in a ton of its own unique feature and offers a great-looking interface and an excellent online help system. Even better, Paint Shop Pro costs less than **$75** and is available on the 'net for a free thirty day trial evaluation; PhotoShop on the other hand will set you back more than **$500**, and you can't even try it out first! All the standard image tools are built into Paint Shop Pro as well as extremely useful features that you won't find in Photoshop and similar competitors, including quick and painless batch conversion capabilities for converting graphic files from one image type to another, advanced screen capturing with automatic drag 'n' drop into the Paint Shop interface, a built-in browser for quickly viewing an entire directory of images, color replacer and masking tools, interlaced graphics support (for 87a *and* 89a GIF images), vector-based image capabilities, and more advanced image filtering tools than you could possibly imagine. Paint Shop Pro even provides built-in browsers for allowing you to preview the effects of its array of filters and image manipulation tools.

Paint Shop Pro also offers support for more than forty different graphic types (including both raster/bitmap and vector-based images) as well as support for third party Adobe compatible plug-in filters. All the popular graphic types are supported, including GIFs (with transparency and interlacing options), JPEGs (with a progressive JPEG option), Portable Network Graphics (with a PNG transparency option), Windows Bitmap (BMP), Kodak Photo-CD (PCD), Corel Draw (CDR), Microsoft Paint (MSP), and Photoshop (PSD), as well as less familiar file types like Electronic Arts (IFF), GEM Paint (IMG), Truevision (TGA), Portable Bitmap (PPM) images, and a whole lot more. In fact, Paint Shop Pro more than doubles Photoshop's support for only fifteen different graphic types. Definitely one of its best features, Paint Shop Pro's on-line help system implements tabbed folders, quick navigation, extensive documentation, and advanced search capabilities, making the task of understanding how to use the program's massive collection of features a surprisingly enjoyable experience. Recently implemented Paint Shop features include floating and customizable toolbars, texture and gradient fill capabilities (a refreshing and useful addition to the client), OLE 2 support, image arithmetic options, emboss and clone brushes, and TWAIN compliant scanner support. Special effects options are also available, with drop shadow, image buttonize, chisel, hot wax coating, cutout, and seamless tiling tools.

Despite an extensive feature-set, Paint Shop Pro does lack several features that would make it even better. First, the client lacks Photoshop's layering capabilities, which give you the ability to separate an image into individual components and layers, allowing for efficient editing and manipulation of complex images. Second, the near-perfect inline screen capture tool lacks only the capability to define a specific size (X by X pixels) of an area for capturing, a useful feature found in another Jasc product, JasCapture. Finally, generating transparent GIFs could be made more intuitive for new users. Overall, you'd be extremely hard-pressed to find a better graphics program on or off the 'net, especially for less than $75. For the majority of users, it just doesn't make sense to shell out so much for an app like Photoshop when a comparable client like Paint Shop Pro costs so much less and offers just as much, if not more. And thanks to the shareware premise, you can try it out yourself before putting any money down. What could be better than that?

FTP2000

Desc: A new, easy to use FTP client that sports an Explorer-like interface
Pros: Solid set of features, Explorer-like interface and tools, easy to use
Cons: Lacks critical features found in the competition, expensive relative to the competition
Location: http://www.qoi.com/cgilocal/qoi.cgi?pg=Ftp2
Status: Shareware **$39.95**
Company: Quintessential Objects, Inc.
Website: **http://www.qoi.com/cgi-local/qoi.cg**

FTP2000 has the humble goal of being the best native 32-bit FTP client in history. It certainly patterns itself after one of the best — many of the features and aspects of the interface mirror those of the reigning champ, CuteFTP, quite closely. While ***FTP2000*** is still in early beta release, the client still has a lot of ground to cover before it can be considered in the same class as the likes of CuteFTP and WS-FTP. Like CuteFTP, it sports critical features like a smooth drag and drop interface, Keep-Alive connection pulsing for avoiding FTP timeouts, directory and multiple file transfers, auto-detect transfer mode, right-mouse button functionality, file mask filtering, firewall/proxy support, integration with the system registry for file association and pulling proxy information, a basic site manager (lacks an extensive collection of sites), quick sorting (on name, size, type, and dates of files), and more. ***FTP2000*** also includes a built-in remote editor for allowing you to edit and save files on a remote server without having to repeatedly go through the manual process of downloading, editing, saving, and finally uploading files. For a new release, ***FTP2000*** offers quite a selection of features, but it does lack several important features found in the competition, including options for creating new directories as well as renaming and removing files and existing directories, an online help system, file searching, auto-renaming capabilities, a customizable toolbar, local and remote path saving, CuteFTP's integrated file listing process (with descriptions from the remote site's index file), WS-FTP's auto-reget (automatic resume), session spawning, and automatic logging.

GTEK

RETRACTION/CORRECTION

In the October, November and December issues of Boardwatch Magzine, GTEK ran a full page advertisement in which 3PC's were shown in a foot race. The graphic compared the 16C654 UART against a CD1400 and 16C550 UART. In that advertisement we inadvertently gave a visual impression that COMTROL uses a CD1400 Chip on its Ropcketport boards. We apologize for the inaccuracy of the advertsiement and any confusion it may have caused.

Lorraine Quigley :-)

GIF CONSTRUCTION SET

Desc: A cool program for adding flavor (and animation) to your GIF images
Pros: Image enhancement tools — animation, transitions, interlacing, transparency, and more
Cons: Only works with GIF images, lacks extensive image creation tools
Location: ftp://ftp.mindworkshop.com/pub/alchemy/
Status: Shareware **$20**
Company: Alchemy Mindworks, Inc.
Website: **http://www.mindworkshop.com/alchemy/gifcon.html**

Want to add a little spice to all those GIF images that you've spent hours upon hours of work on? If you're stuck with single frame, non-interlaced, non-transparent GIF images for your web site, you definitely need to check out GIF Construction Set and see what you've been missing. This cool little program guides you through the process of adding new life and dimension to any standard GIF image. Some of the cooler effects that can be generated are image transparency (so that the background of your graphic blends in with the background of your web site), interlacing (allowing the graphic to become visible as it is being downloaded rather than appearing only after the graphic has been entirely downloaded), image transitions (ten different effects for changing the way your image fades in and out after being downloaded), and merging (combining multiple images into one).

By far the most popular image effect offered by ***GIF Construction Set*** is animation, which allows you to create one graphic composed of multiple GIF images. This single graphic, when viewed by a high-end web browser (Netscape 2.0 and higher or Internet Explorer 3.0 and higher), will cycle through its collection of images, thereby creating an animation effect on your web site. For an example of GIF animation, check out the 'RAM Upgrades' image on The CWSApps List What's New page (**http://www.stroud.com/new.html**) with one of the browsers listed above. Animated images, also known as multiple image GIFs, are larger than regular GIFs, but they do add another dimension to your images that could otherwise only be obtained by implementing a MPEG, AVI, or MOV multimedia video. Animated GIFs have a couple of advantages over each of these formats, including smaller file size (quicker download for your users) and inline viewing by web browsers (no helper applications or plug-ins are needed to view animated GIFs).

In addition to its array of image manipulation tools, GIF Construction Set also offers extensive (and impressive) help for the program and its effects, including an Animation Wizard for taking you step-by-step through the process of designing animated GIFs, online documentation, and an accompanying 31-page novella with detailed instructions for each of GIF Construction Set's many features. While GIF Construction Set does only work with GIF images, the tools and effects it offers for the most common graphics format on the 'net are unparalleled. Overall, GIF Construction Set is the perfect tool for enhancing GIF images and is quite a steal at only **$20.**◆

GTEK introduces
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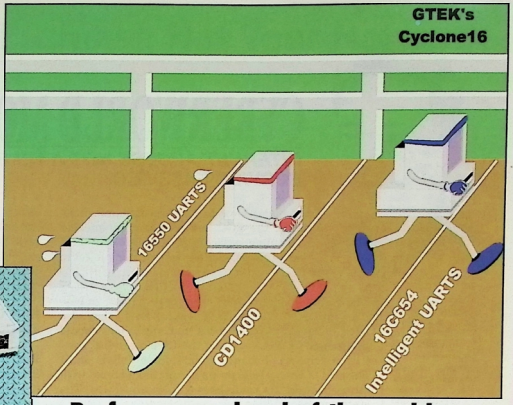
Intelligent UART serial boards are an exciting addition to our already outstanding line of communications products. The Cyclone Family is impressive engineering that will take the industry by storm!

Cyclone16 is shown. Cyclone32 is available as an upgrade or complete unit.



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Frank X. Sowa

INTERNET ACCESS NOT A TELECOMMUNICATIONS SERVICE SAYS FCC

In a major blow to the telecommunications giants, the FCC has deemed that Internet and online services are not telecommunications services, and as such are not subject to the FCC's regulatory regiment.

Frank X. Sowa is president of The Xavier Group, an international consultancy providing strategic planning, forecasting, training, and development of business and communications systems for organizations since 1981. As a certified software consultant for Sofarc's First Class, and a reseller for other companies, he configures customized BBS systems for organizations, complete with "regular content updates." Sowa is also founder and sysop of SEED.NET (412) 487-5449, "the online incubator" for small businesses, a seamless BBS-to-Internet (PPP) provider, with business start-up assistance and seed capital available online. mailto:frankxsowa@aol.com

The giants fought hard to make ISPs subject to paying into the FCC's universal service fund. They also tried to get the FCC to agree that access fees should be charged to ISPs —calling the ISPs a service "competitor that was harming their (billion dollar) profit margins." The telcos propped up the claims with requests to utility commissions in many states. The state commissions, in turn, requested a ruling based on the new interpretation of these terms as is mandated in the Telecommunications Act of 1996. Had the FCC taken the bait and acted like a traditional government bureaucracy, they could have ruined many small ISPs.

But, despite lobbying pressures and "in your face" participation during the comment periods regarding these issues,. Reed Hundt and the FCC have wisely proposed new laws that come out in favor of increasing competition and protecting the unregulated status of Internet and information service providers. Of course, that could still be changed in 1997 by acts of Congress, Clinton Administration Executive Orders, or by state governments — who all have some say in how the final provisions shall be enacted.

PROPOSED RULINGS MAJOR STEP TOWARD AN OPEN INTERNET

But, for now, the future of ISPs seems to be safe from overburdening FCC regulations. The FCC's Federal-State Joint Board took the first major step towards realizing the mandate for universal service set forth in the Telecommunications Act of 1996 in November, and made the ruling regarding access fees in December. The 1996 Telecommunications Act requires that the FCC and the states work through the Joint Board to ensure affordable "core" telecommunications services and access to "advanced telecommunications and Internet services in a manner that enhances rather than distorts competition."

Several commenters asserted that Internet access should be included within the category of "advanced" services. Had this been done, ISPs would have been made liable to pay into the Universal Service Telecommunications Fund, and would have been subject to all the regulations of the FCC regarding "telecommunications services." Furthermore, it would have limited the ability of ISPs to provide internet services to schools, libraries, government communities, and healthcare facilities — unless the ISP was "also certified as a common carrier."

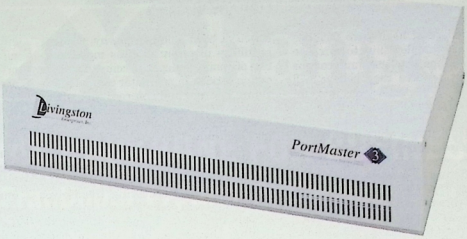
ISPs OWE THE FAVORABLE PROPOSALS TO COMMENTS BY NETSCAPE

But, the joint board agreed instead with Netscape's interpretation of the Act that since "the 1996 Act does not repeal, but in fact codifies the Commission's long-standing Computer II distinction between basic telecommunications and 'enhanced' information services . . . Internet access is assuredly an 'information' service, not 'telecommunications' service."

To make their point, Netscape described the Internet as an unregulated, non-governmental and self-administered network for global information exchange. As explained by Netscape — ISPs and online service providers that offer Internet access "rely to a large degree on existing telecommunications carriers for the underlying transport facilities that constitute the Internet's backbone, as well as for local loop connections to individual Internet servers and users." They went on to explain the Internet is really only a set of industry standards or protocols that "run over the telecommunications infrastructure" — a means by which networks communicate — just as voice transmissions run over the telecommunications infrastructure to allow people to communicate. As such, they said — none of the ISPs, e-mail, or information services should be subject to FCC or state telecommunications regulations. (This would be a good argument should your state try to implement universal service charges or access fees, by the way.)

The Joint Board agreed. They found that access to the Internet, to the extent that this implies non-toll access, is provided most often through voice-grade access to the public switched network. The Joint Board found "that the provision of Internet service does not meet the statutory definition of a 'telecommunications service,' and is therefore not subject to universal service regulations." This approach by the Joint Board did two things for ISPs: First, it clearly distinguished the difference between telecommunications services and information (Internet) services; and second, it made ISPs eligible for providing "Internet Access" to organizations subsidized with universal service funds — without being subject to

Focus On Your Business, Not Your Network



The PortMaster 3

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Web: www.livingston.com

the fees and regulations that the underlying telecommunications company must comply with.

JOINT-BOARD RECOMMENDS MAXIMUM FLEXIBILITY

The Joint-Board recommended that the FCC "adopt a rule that provides schools, libraries, and rural healthcare facilities with the maximum flexibility to purchase whatever package of telecommunications and Internet services they believe will meet their needs most effectively and efficiently." The Board felt that these groups should be able to custom purchase their services from "anyone who can be shown to meet their specific needs" and not be limited to purchases only from the telecommunications services. The Board commented, "Empowering schools and libraries to choose the services best suited for their needs is critical to achievement of the important universal services goal of pervasive technology deployment and use in all schools and libraries, regardless of wealth and location."

The board further noted that any attempt to "disaggregate the network transmission component of Internet access from the information service component could serve to undermine the competitive forces that currently characterize the Internet access market at this time." In essence, this means that the telecommunications companies must provide the underlying telecommunications infrastructure at a predetermined discount between 20% to 90% to schools and libraries (and under a different discount structure to healthcare providers and communities) — that would link up these institutions to an operating ISP. And, that this discount would be reimbursed to the telecommunications companies through the Universal Service Fund.

WHAT DOES THIS MEAN FOR ISPs? ADOPT A SCHOOL OR LIBRARY IN '97!

If you've been wondering why so many headlines in recent months make mention of another telephone company, major online service, or computer company providing internal and Internet link wiring services to schools for free, it is probably because they were watching the FCC rulings regarding Universal Service closely.

By "donating" the connections now, they are receiving maximum publicity and "good will," and are tying themselves into long-term "contracts" with the schools they wire. They are also establishing themselves as the Internet Service Provider "of choice" at these institutions — which means that they will probably be able to underbid smaller competitors at providing Internet links. Under the FCC's Universal Service proposals — this must be an "open" bidding process for schools and libraries if they wish to receive federal subsidies. The telecommunications services are also expecting to receive waivers on the taxes that they have to pay into the Universal Service fund — which means that the "donation" is actually an accounting "wash."

The secret here, is that ISPs can also reap similar rewards by "adopting a school or library" now. The Feds intend to have funding in place by mid-summer to subsidize Internet access by these supported institutions.

The Joint-Board proposed that schools and libraries may receive discounts of between 2% and 90% on all telecommunications services, Internet access, and internal connections, paid out as qualified reimbursements under federal Title I (schools) and Title III (libraries) subject to a **$2.25 billion** annual cap. For Internet access, the board recommended discounts for "basic conduit, i.e., non-content, access from the school or library to the backbone Internet network. This access would include the communications link to the ISP, whether through dial-up access or via a leased line, and the subscription fee paid to the ISP."

The discount would also apply to electronic mail, but it would "not apply to subscription or other fees charged by the ISP to receive additional value-added information services." (In other words, ISPs can still benefit by offering low-cost access and charging the full retail price for their content services.) Schools and libraries would also be reimbursed by the government for the entire "basic monthly" charge by an ISP for bundled access to some minimal amount of content, but only under those circumstances in which the ISP basic subscription charge represented the most cost-effective method for the school or library to secure non-content conduit access to the Internet.

In other words, ISPs (not just the telephone, cable, and wireless companies) can bid for contracts with schools, libraries and communities — and can expect to compete on pretty much equal footing with the common carriers, who must provide the telecommunications services infrastructure to connect the institution to the ISP at the pre-determined discount level.

Furthermore, the FCC appears to be adopting rules that will partially reimburse schools based on the 20% to 90% discount scale for internal connections and wiring as well. The rules state that discounts will also apply to any internal connection "that enhances access to advanced telecommunications and information services for all public and nonprofit elementary and secondary school classrooms and public libraries." These connections may include routers, hubs, network file servers, and wireless LANs, but they exclude personal computers.

Because many ISPs are also value-added resellers for many of these products, and have the necessary networking skills to provide support services within these institutions, 1997 could turn out to be a banner year for growth and survival should an ISP decide to adopt one, or more, of these institutions.

For more information, you can download the entire 489 page FCC report from the FCC homepage: **http://www.fcc.gov/ccb/universal_service/section10.html** or just read the news releases: **http://www.fcc.gov/headlines/universal_service**

Or, you can read Reed Hundt's comments on the provisions:

http://www.fcc.gov/speeches/hundt/st110796.txt

Finally, you can read the Whitehouse, pre-election press conference on the proposals: **http://www.whitehouse.gov/press_conferences/universal_service** ◆

Your customer
calls in
dazed and confused.
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and misclaims.
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in the fog.
You are his light.
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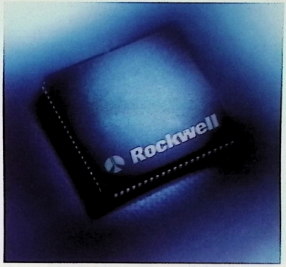
which one?
You take a deep breath
and tell him.

"Simple. Anything with Rockwell K56Plus.™



Listen. You like the speed of 56K, correct?

The thought of blistering through graphics and data. I mean, who wouldn't want to download from the Net at twice the speed.

The problem is compatibility. You **expect to connect,** right?

But pick the wrong modem—you know, one that doesn't talk to your online service provider in the same language—and your 56K just slams on its airbrakes. You're looking at 33.6. Maybe 28.8. Or maybe even—here's a scary thought—14.4.

Over 300 ISPs and online service providers and more than 100 PC and modem manufacturers already support Rockwell's K56Plus technology.

Bingo. You're back in the Dark Ages.

So here's the deal. Look for any modem with a Rockwell K56Plus chip inside.

That's it. It's the most widely accepted 56 Kbps technology in the industry.

They've already got over 300 Internet and online service providers supporting them. And over 100 PC and modem manufacturers. Way more than anybody else.

Probably because they know Rockwell's been a standards leader since modems began. Seventy-five percent of all the modems in the world, in fact, have a Rockwell chip inside. **Seventy-five percent.**

Seventy-five percent of the world's modems carry a Rockwell chip inside.

So it's easy. Just pick any modem with a Rockwell K56Plus logo on the outside. Can't go wrong.

And, hey. Have a nice day."

Rockwell

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SINGAPORE

SINGAPORE: AN ASIAN TIGER WITH A WORTHY INTERNET PRESENCE

By Vito Echevarría

Known by experienced travelers as the Lion City, Singapore is a city-state made famous by its efficiency, cleanliness, and law and order (which suffered a public relations snafu over the caning of American vandal Michael Fay some time ago). This is the city that ***Asia, Inc. Magazine*** recently rated as the best Asian city to establish a corporate headquarters. With the 15th largest economy in the world (Singapore's per capita GNP is US$21,070), based on financial and business services, manufacturing, commerce, and transport and communications, it's no surprise that a wealth of web sites on Singapore can be found on the Internet.

Singapore currently has three ISPs, and according to the ITU (International Telecommunications Union), there are 125,230 Internet users (out of a population of 3 million), and 15.3 computers per 100 people — the highest ratio in the Far East, compared to its northern neighbor Malaysia (3.3 computers per 100 people), Indonesia (0.3 computers per 100 people) and even Japan (12 computers per 100 people).

SINGAPORE'S WORLD WIDE WEB SITES

SINGAPORE ONLINE
(http://www.singapore.com/cgibin/var/online/var.htm)

This Internet resource has listings of numerous firms in Singapore (from information technology (IT) and semiconductor companies to biotechnology and shipbuilding firms), making it a one-stop link for any American company or entrepreneur interested in doing business in Singapore.

In keeping up with the city-state's reputation as being an efficient, no-nonsense business center, Singapore

Online goes as far as urging prospective buyers who have had problems with the companies listed on its web site to forward complaints to consumer groups such as the Consumer Association of Singapore, the Singapore Retailers Association, and the Singapore Tourist Board (at their respective websites).

Of particular relevance to American firms wanting to import and distribute foreign-made consumer and industrial goods, this web site has a section where such requests are posted (**http://www.singapore.com/cgibin/var/online/products/hellosin/var.htm**). Prospective buyers can also look to this web site for Singapore-based supplier contacts. Because of Singapore's geographic location, there are many postings that request both new and used computers and peripherals. Of even more importance to U.S. exporters, this web site has numerous leads where they can sell their goods worldwide.

In addition, Singapore Online has other resources, like a jobs opportunity section — which lists job openings at the Singapore facilities of multinational firms like Disney and Intel. There's also a Travel section, a Products and Services section, a listing of useful Singapore-related web servers, and even a fax forwarding section for foreign firms wanting to contact Singaporean companies.

SINGAPORE BUSINESS CONNECTION
(http://www.asiabiz.com/singapore/)

This web site is a well-detailed source of information on Singapore's vast manufacturing and export base — with a variety of categories listed — from abrasives to yarns. Once again, because Singapore is an export economy, this web site would be of interest more to American and foreign importers than exporters.

However, if one looks through this site's boutique section, American and foreign firms and subsidiaries, like Bally Singapore, Harley-Davidson of Singapore, Hermes Singapore Pte. Ltd., Lanvin Paris, Levi's, and Nina Ricci, are well-represented. In addition to the manufacturing and export section, one can tap into information on Singapore's array of business services, and travel/leisure/restaurants section as well for those planning their first visit to Singapore.

SINGAPORE TRADE DEVELOPMENT BOARD
(http://www.tdb.gov.sg/)

The Singapore government's Trade Development Board (TDB) exists to promote Singapore's goods and services overseas, attracting international traders to base themselves in Singapore, and expand trade between Singapore and the rest of the world.

In this web site's Corporate Information section, there's a list of TDB offices around the world, as well as a section for Singaporeans to apply for a position at the TDB.

Then there's the Singapore Business Focus section, where one can find an alphabetical index of Singaporean firms who use this web site to advertise their products and services, along with companies looking to expand their contacts with the U.S. and elsewhere (**http://www.tdb.gov.sg/singbiz.html**). Each of these companies spell out which products they're interested in buying and selling into foreign markets, something of good use for U.S. exporters looking for buyers in Singapore.

In that site's Government and Business Organizations section (**http://www.tdb.gov.sg/globlink/govorg/gv_menu.html**), there are links to Singaporean government ministries and bodies, chambers of commerce, and trade associations, which will help foreign firms and entrepreneurs familiarize themselves with smoothly doing business in that country. In addition, there are also sections on Singapore's businesses — listed by category (**http://www.tdb.gov.sg/globlink/sindust/si_menu.html**).

Further down this web site, details can be found on doing business in Singapore (**http://www.tdb.gov.sg/bizspore/sp_cont.html**), import and export information (**http://www.tdb.gov.sg/ieinfo/ie_home.html**) — where among other uses, track documents can be processed quickly through TradeNet (an electronic data interchange/EDI system), as well as FAQs on documentation procedures and certificates of origin. There's also information on dutiable items (**http://www.tdb.gov.sg/duty/duty.html**) like alcoholic beverages, tobacco and petroleum products, and auto parts.

In addition, there are also links to Singapore trade statistics, Singapore company profiles, textile quota information, all trade indicators, and general Internet trade news. There is also the Trade & Investment Centre – the largest business library in Singapore (**http://www.tdb.gov.sg/infosvc/i_tiic.html**)

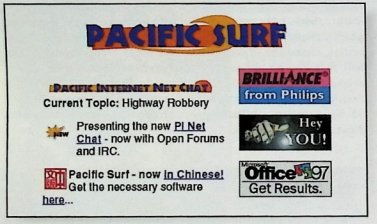
SINGAPORE'S INTERNET SERVICE PROVIDERS (ISPs)

(a sampling)

Despite the growing number of web sites dedicated to Singapore, the number of service providers in the city-state is rather modest for its size (three). As of July 1996, there were 38,376 host sites in Singapore (with 1,325 domains queried, 167 missed). The following are the Singaporean ISPs in existence:

PACIFIC INTERNET

(http://www.pacific.net.sg/)



Singapore's few ISPs are competing hard for customers (in the same way that AT&T, MCI, and Sprint compete for long-distance customers). As part of that atmosphere, Pacific Internet is currently scrapping its activation fee for Internet customers who switch from other Singaporean ISPs. According to Maureen Tseng, Communications Manager for Sembawang Media (the holding company for Pacific Net), this ISP commands a sizeable share of the Internet market in Singapore: "Pacific Net has about 50,000 dial-up subscribers (some of which are companies), and over 200 leased-line customers (leasing lines from 64 kbps upwards)."

Along with the usual Internet services (WWW, E-Mail, FTP, net chat, 24-hour technical support), Pacific Internet's package to subscribers includes value-added services like free classifieds, on-line usage checking, e-mail paging (an unfamiliar service to U.S. Internet subscribers — that feature sends e-mail messages to a subscriber's pager), money-saving travel packages (as a further incentive to subscribe), as well as something called "Global Access Roaming Service" (which permits subscribers pay for just local phone charges when accessing their Internet accounts — including usage of their e-mail — from Hong Kong, Japan, South Korea, and the U.S.).

Dial-Up Service	One-Time Activation Fee	Monthly Fee
Easy Access	S$39.95	S$9.95 for 12 hours usage (S$2.95 per hour after)
Easy Access Plus	S$39.95	S$24.95 for 24 hours usage (S$2.95 per hour after)
Unlimited Access	S$39.95	S$100. flat fee

Note: US$1.00 = (Singapore Dollar) S$1.40

ISDN SERVICE Package	Monthly Service Charge	Free Access Per Month
Personal ISDN Lite	S$108.00	40 Hours (S$7.50 per hour After)
Personal ISDN Pro	S$206.00	80 Hours (S$7.50 per hour after)

Pacific Internet's address is:

Pacific Internet Pte. Ltd.
89 Science Park Drive
#04-09/12 The Rutherford
Singapore Science Park, Singapore 118261

Tel.: (65) 872-1455 Fax: (65) 872-1200
E-Mail:info@pacific.net.sg

SINGNET SINGAPORE

(http://singnet.com.sg/)

This ISP is Pacific Internet's main competitor. Singnet's edge over Pacific Internet seems to be its 256 Kbps bandwidth connection to Japan (significant, because at least some Internet

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PERSONAL SERVICE (S$40.00 Registration fee)

Plans	I	II	III	IV
Free Connection Time	12 hours	25 hours	60 hours	90 hours
Personal Dial-Up	S$9.50	S$25.00	S$60.00	S$85.00
Student Dial-Up	S$7.50	S$20.00	NA	NA

Note: Excess Traffic Charge: 5 cents per minute

S-I-N-G-NET

CORPORATE SERVICe (S$40.00 Registration fee)

Plans	I	II	III	IV
Free Connection Time	12 hours	25 hours	60 hours	90 hours
Personal Dial-Up	S$9.50	S$25.00	S$60.00	S$85.00

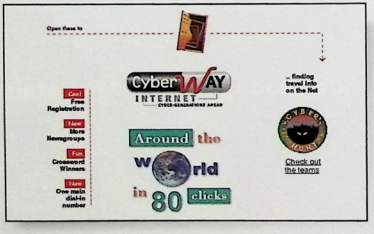
Note: Excess Traffic Charge: 5 cents per minute

traffic from Singapore to neighboring Asian countries must first go through the U.S.). Aside from that, Singnet's incentives seem to be targeted to young users (cheaper student rates, and cybergames). Aside from the standard Internet services, Singnet offers fax mail service, free classified ads, Global Roam Service (from both neighboring Far East countries and the U.S.), as well as technical support.

Singnet's address is:
Singnet Singapore Telecommunications Ltd.
20 Pickering Street
#04-00 Pickering Street
Singapore 048658, Republic of Singapore

Tel.: (65) 838-3899 Fax: (65) 535-8191
E-Mail: help@staff.singnet.com.sg

CYBERWAY
(http://www.cyberway.com.sg/)



This Singaporean ISP's service is virtually the same as the others. The only real difference is that Cyberway's fees are somewhat more expensive.

What is surprising about Singapore is that there are (so far) just these three ISPs in existence. But then again, the Internet is still consider a relatively new phenomenon in the Far East (even for savvy, advanced economies like Singapore and its powerhouse rival Japan). The wiring of the Internet in the Far East reflects this reality, and is troubling, since, for example, 8 out of 10 connections from Singapore to Thailand must go through America.

Developments are in the works to change this. Singapore ISP (Singnet) has a 256 Kbps bandwidth connection to Japan. However, Sing-net's competitor, Pacific Net, is a member of a major initiative called the Asian Internet Backbone (a.k.a. "A-Bone"), which is setting up a triangular telecom structure to deal with growing Internet use in the Far East: an E1 link (transmitting data at 2 megabits per second) connects Singapore to Tokyo, while a T1 line transmits 1.5 Mbps between Hong Kong and Tokyo, and more lines hook-up Hong Kong and Singapore. For the time being, there's a connection to the U.S. via a T3 line (45 mbps) that runs between California and Tokyo.

It's just a matter of time before more such links are set up, which will significantly cut down on the time consumed for Americans wanting to browse through Singapore-based and other Far Eastern web pages. ◆

INDIVIDUAL & NETWORK DIAL-UP ACCESS

Service	*i.lite*	*i.deal*	*i.pro*	*i.max*
Monthly Subscription	S$12.95	S$25.00	S$48.00	S$88.00
Free Access Per Month	13 hours	20 hours	40 hours	80 hours

*S$45.00 Registration fee

USAGE CHARGES

Per Hour Charge		
Monday-Friday Peak (8am -Midnight) S$2.95	Monday-Friday Discounted (Midnight - 8 am) S$2.00	Saturday, Sunday, Holidays Holiday Rate S$2.00

CyberWAY INTERNET

ISDN SERVICE

Package	Monthly Service	Charge	Free Access Per Month
I.sdn 64	(64 kbps)	S$1,000.00	Unlimited
I.sdn 128	(128 kbps)	S$1,500.00	Unlimited
Special Package for 64 kbps Only	my-I.sdn	S$135.00	40 hours
I.sdn40h		S$300.00	40 hours
I.sdn80h		S$500.00	80 hours

USAGE CHARGE

Per Hour Charge	
Special Package for 64 kbps only	S$7.50

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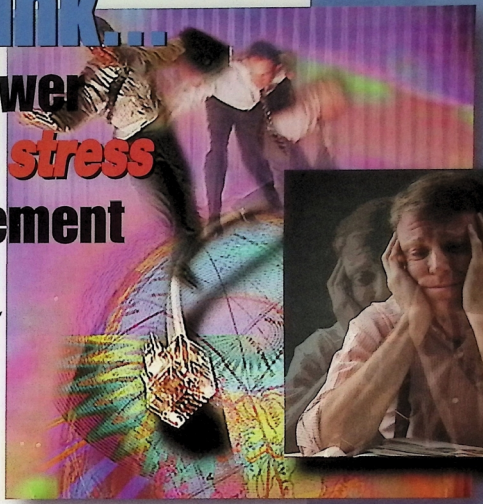

Net-link now offers full news/USENET access to any Internet Service Providers!!!

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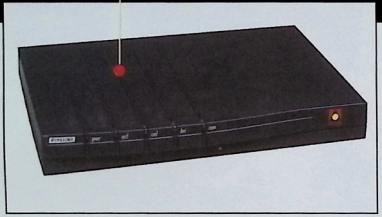
CONNECTING YOUR SMALL BUSINESS TO THE INTERNET

by Jack Rickard



The current rage among a strong segment of Internet Service Providers revolves around connecting "businesses" to the Internet. This generically means they are looking for customers who have a lot of money and aren't very smart. But for many smaller businesses, there is a legitimate and significant advantage to having a full-time connection to the Internet – particularly for the not so terribly exciting but actually pretty important world of electronic mail for the office LAN. All marketing promotional materials to the contrary, the dirty little secret of the Internet is that there are a LOT of businesses making this connection with very small bandwidth connections at affordable prices and doing very well with that thank you. You can actually have three or four workstations browsing the web through a single 28.8 kbps connection believe it or not and the performance is not as bad as you might imagine. For many small businesses, a bit of web access is additive, but having half the labor force busy downloading huge GIF images of ladies unadorned by the valiant efforts of the Garment Workers of America is rarely part of the company mission statement.

There are probably 12,374 ways to connect a small LAN to the Internet and everybody has their favorite. If you notice, because there are so many options, nobody ever really defines any of them in print. To do so either eliminates most of the options, or winds up being 750 pages in length. In this article, we're going to describe ONE way to do it. And to do this efficiently, we're going to focus on one that worked well pretty early in the game for us at Boardwatch. It relies rather heavily on a device titled the Internet Protocol Adapter or IPAD from eSoft, Inc. The main merit of this device is that it covers a lot of the little housekeeping chores nobody ever discusses, and it has a much shorter installation and learning curve than UNIX, Linux, or Windows NT.

What we're aiming for here is a small office with 15-25 seats on a working local area network. We're going to assume it is operated by someone in the office knowledgeable on maintaining the LAN, helping other employees install software, accustomed to hearing a lot of whining and crying from those employees and offering them a sympathetic shoulder as the need arises. Typically, they also have another REAL job they're supposed to be doing in between troubleshooting the LAN. If you can afford a full-time UNIX professional in an office of 15 workstations - please forward a prospectus for your business to ***Boardwatch Magazine***.

Some requirements fall out of this mission immediately. There probably isn't resource sufficient to hire a $70K per year UNIX guru. And the hapless yuck charged with doing all of this probably doesn't want to spend the next 60 days going through the learning-curve mountain and technical-manual magic valley just to get there and learn what the resource editor is. So we need something that will go up using the expertise already available on site, and which will give you the capability required without a lot of maintenance.

We're going to map a pretty simple standing connection, and hopefully describe a process that could be performed in a single day without reinventing Rome. Inevitably, we have to limit this to a pretty straightforward plan, and yes, there are still 12,373 OTHER ways to do the same thing. This is one we think you can both start AND finish and have it more or less work on completion the first time.

UNDERSTANDING THE MISSION

Connecting a LAN to the Internet involves several things. Obviously you need an Internet feed from an Internet Service Provider and some method of transport between your site and the ISP. What's not usually discussed are some other very basic things you will also immediately need to do to actually be functional with that connection. The components of making a full connection to the Internet are:

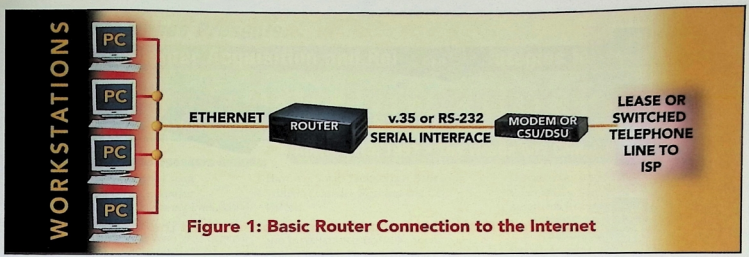


Figure 1: Basic Router Connection to the Internet

- **The Wire to the Internet**
- **The Gateway Router**
- **Domain Name Control**
- **Electronic Mail**
- **Remote Access**
- **WWW and Special Purpose Servers**

Note: The server functions of DNS and e-mail can be rented from a "full service" ISP. But since we feel you are doing all of this to get 100% control over your Internet site and minimize recurring costs, we'll show how to install these locally on your LAN allowing you to simply obtain a "raw connection" to the Internet at a lower price. As in any complex part of life, plenty of people stand ready to take your money in return for a promise to take some of the problems off your shoulders. If you are fully informed, you can decide if paying that money sounds like a good idea in your case, but more importantly you'll know what they are promising to keep you from having to face and be able to tell if they've done it.

THE WIRE AND THE ROUTER

The first, and most obvious, part of making a connection to the Internet is the wire from your LAN's location to an external location that has access to the Internet. This wire generally falls into one of three groups:

- **Full time Dial-up modem connection**
- **Basic Rate Interface 2B+D ISDN connection**
- **Leased Line (56k, T1, Frame Relay, etc.)**

Regardless of the type of wire you use, however, the goal is to have every workstation on your LAN have its own IP address on the Internet. To do this you will use a router plus the modem or adapter for the type of wire you choose, and some control software to make the connection. This is shown in figure 1. The router has an Ethernet interface to connect to your LAN and a serial port (either async or sync based on the wire type) which connects to the modem, ISDN adapter, or CSU/DSU for the outgoing line. We've shown these components broken out so you can see that they exist, but they are usually integrated in whole or in part, and this can add to the confusion when you look at different products. Usually you will obtain a Class C network (255 IP addresses) from your Internet provider which you can then assign to the computers on your LAN as you wish.

The basic role of the router is to examine packets on the local area network and determine if they are local traffic or external traffic. If they are local, the machine with the IP address in the packet header will respond to them. But if they are addressed to an IP address not part of the local LAN, the router ships them out to the Internet Service Provider, who further routes them toward their destination. The router also receives packets from the ISP, and if destined to any valid IP address within the subnet block for your Local Area Network, passes those packets on to the ethernet within the office where the machine they are addressed to can detect and respond to them.

To make a dial-up connection with the IPAD, you install a dial-up script to make one of the IPAD's serial ports call your provider over the regular voice telephone network, connect, and monitor that connection so it will automatically re-dial if the carrier is lost. Since the IPAD is also a router, it can make this type of connection with only the addition of an external modem, as shown in figure 2. Based on how you structure the

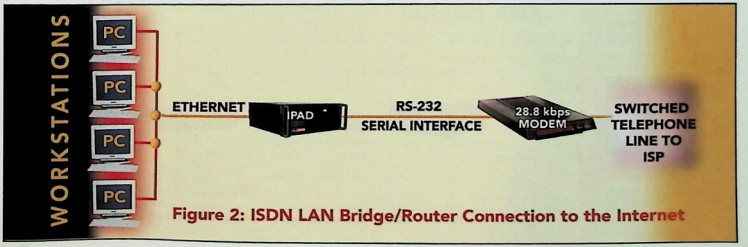


Figure 2: ISDN LAN Bridge/Router Connection to the Internet

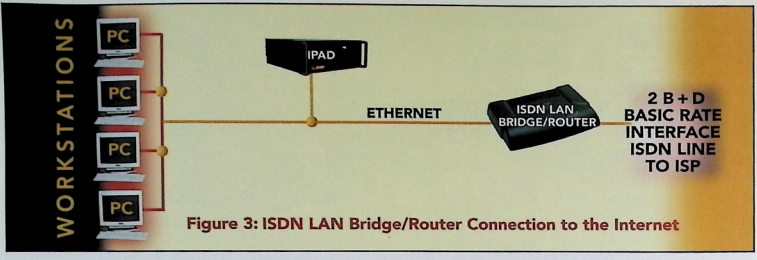


Figure 3: ISDN LAN Bridge/Router Connection to the Internet

dialing script the IPAD will connect full time and maintain a standing connection. Alternatively, it can dial your ISP on a time schedule, or only when data needs to be sent out (on demand), and can be left connected permanently or set to disconnect after a time interval without any data flowing to or from the Internet.

This type of connection only differs from the dial-up connection you use as a caller from home in that multiple IP addresses are routed to it so your LAN can have addresses for each workstation. This difference is a setup issue on your provider's end. There is also frequently a much higher charge for a dedicated dial-up line that you intend to be connected to full time. And you generally get your own domain name in the process. ***Boardwatch's*** connection to the Internet was run exactly this way for nearly a year several years ago, and we can attest that while 28.8k may be a bit light for running a web server today, you can do a lot of e-mail quite effectively this way. A full time 28.8 kbps dial-up connection for an office LAN is typically priced between **$75** and **$200** per month with most clustered around **$150**.

For ISDN connections, an ISDN adapter replaces the modem and connects to the router. However, the most popular ISDN connection devices integrate an ISDN adapter and a router in a single unit known as a LAN bridge/router. There are many products of this type on the market, and while some are easier to configure and install than others, most do the job effectively. Ascend has been very popular with their PIPELINE series, but companies such as Farallon and Trancell have recently made inroads on this market. Your choice of brand here is best made by finding out what type the provider you are connecting to will be using on their end and getting the same thing yourself. This assures there won't be any problems of inter-operation, and it also gives you some chance that the provider can help you set your end up properly if you have trouble. Figure 3 shows how your LAN is connected using an ISDN LAN router/bridge.

ISDN connections typically bond the two 64 kbps B channels available from ISDN Basic Rate Interface Service into a single 128 kbps link. They usually also add compression algorithms to these devices to effectively increase the data rate to as high as 350 kbps, and this works pretty well on the highly compressible e-mail and web type of data that passes through such a link. ISDN requires both a Basic Rate Interface ISDN line from the telephone company ($30-75 monthly) as well as a full-time ISDN LAN connection from the Internet Service Provider (typically **$200** to **$350** monthly). This is actually a pretty capable connection, and we run across the odd small office web SERVER running over an ISDN connection at low volumes.

To make a connection using a higher speed leased line, you will need an adapter called a CSU/DSU (Customer Service Unit/Digital Service Unit) which connects to the leased line and plugs into a synchronous serial port on the router. Since the IPAD is a router, you can plug a leased line directly into it. Figure 4 shows how your LAN is connected to a leased line using an IPAD. It doesn't matter if the line is Frame Relay or point-to-point dedicated as far as the hardware is concerned. The only issue is whether the router can handle the protocol. The IPAD can plug directly into either a Frame Relay circuit or a point-to-point circuit at speeds up to the 1.544 Mbps T-1 standard quite readily.

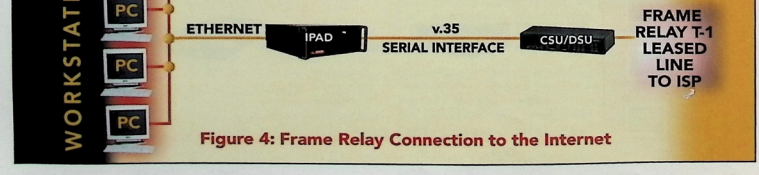


Figure 4: Frame Relay Connection to the Internet

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The key thing to realize about the wire and router is that once you have things up and running using any of the above methods, it is a simple change to buy more bandwidth (and possibly the new adapter required by it) and get faster. Only the adapter, router interface and configuration change, the rest of your installation stays the same.

THE GATEWAY

Note that no matter which kind of wire you use to get to your provider, the mission is the same. You want the block of IP addresses you get from your provider routed so that they will come to your end of the wire from anywhere on the Internet. This is what your provider supplies. Once the wire is in place to your router, you configure the workstations on your LAN to give each one a unique IP address so that it can reach the router and go out the wire to the Internet.

Your LAN is now a network on the Internet. All other locations on the Internet are on some other network. This is reflected in the IP addressing by the configuration parameter known as the netmask. When you configure the workstations on your LAN, you enter their IP address and the netmask for our network (usually 255.255.255.0 for a Class C network). This is enough information to allow a sending workstation to tell if a destination IP address is "local" or "remote" meaning on your network or some other network. While any IP address that is on your network is directly connected the Ethernet, to reach any address which is remote, the data will have to flow through the router to the Internet.

The router which connects your LAN to the Internet is thus called the gateway router or just gateway for short. It is part of two networks, your LAN through its Ethernet interface, and the line to your provider through its serial interface. When you are configuring your workstations, and the configuration asks for the gateway IP address, it wants the address you assigned to the gateway router's Ethernet interface. That allows the workstation to send packets which are not on your network (as determined by the netmask you configure) to the router that is attached to its Ethernet, knowing the router will forward them on to their ultimate destination.

DOMAIN NAME SERVICE

In many cases, people feel they will be done when they have brought in a leased line and a router. But there are some other issues that turn out to be very important. The first, and most important of these is DNS (Domain Name Service). When you connect your LAN to the Internet, you want to have a name (such as boardwatch.com) that will allow the outside world to send you e-mail and connect to any servers you put up (such as FTP, WWW, etc.). The Domain Name Service is how you accomplish this, and to manage your own names you need a Primary and Secondary DNS server. This is software, just like a web server or an ftp server, that manages your name and lets the world look you up when it needs to.

You implement DNS servers by putting a computer on your LAN and installing DNS software on it. Then you have to learn how to set that software up so your DNS name does what you want it to. As mentioned earlier it is an option to buy DNS service from your service provider. You will incur an extra cost to do this, but by far the biggest problem you will face stems from the fact that you don't control your DNS listings yourself.

Anyone who has put in a LAN knows that it is constantly changing. An Internet installation is no different, except that most changes require a change in your DNS name listing to match. If you have your own DNS server this is easily done, but if you have to pass every change in your DNS to a service provider, wait for them to make the change (and hope they get it right) it can cause a lot of frustration when you are developing changes to your system. The IPAD integrates a full DNS server so that an extra computer is not needed for this function, and it is as easy to set up as any DNS server anywhere.

You use your DNS server to define any sub-names you want (such as **ftp.boardwatch.com**, **www.boardwatch.com**, jack.boardwatch.com, etc.) and associate them with the IP number for a specific machine that will act as that server. And you will want a defined name for each workstation on your LAN if they intend to go out on the Internet. Each name is a single line in a DNS zone file on your DNS server. You also set up e-mail routing using DNS, indicating which computer you want e-mail addressed to boardwatch.com (or any other subname you wish) to be sent to.

The last issue on DNS servers we should address is the concept of Primary and Secondary DNS servers. When you register your DNS server to be authoritative, the InterNIC will ask for at least two server IP addresses. This is to assure that if one of the servers is off-line, your Domain Names can still be looked up. However, if you've ever tried to keep files the same on two or more computers, you know it is nearly impossible. That is where Primary and Secondary DNS servers come in. The Primary server is the server where the actual data file is.

A Secondary DNS server is one you have said is also authoritative for your domain name (meaning it knows as much as anyone about your Domain Name) but which you don't want to have to assure has the same files manually every time you make a change. To accomplish this a secondary DNS server will periodically ask your Primary server "does this name have any changes?" and if the answer is yes (because you just edited the file) then the Secondary server will download the file from the Primary server so it knows the new information. That way you can have multiple DNS servers which are authoritative for your domain name, but only have to manage the information on one of them.

Note that a DNS server can handle many domain names (as many as you want usually). So the same server may be a Primary DNS server for one name while being a Secondary DNS server for another. It is a matter of setup which is done on a name-by-name basis. The IPAD's DNS server can be both Primary and Secondary for as many names as you want.

Because setting up a Secondary DNS server is a one-time process (since all changes to the data come from your Primary server) your provider will nearly always agree to be secondary for your domain name. This allows you to satisfy the requirement for two DNS servers without having to run two DNS servers yourself. We do note that some providers will impose a fee to be secondary for more than one name, and you should check that out as part of making your choice of providers.

So once you have a functioning DNS server, you can have any domain name or names you like as long as they are not being used by others. To apply for and make active your domain name, you must first FTP the InterNIC and get the proper

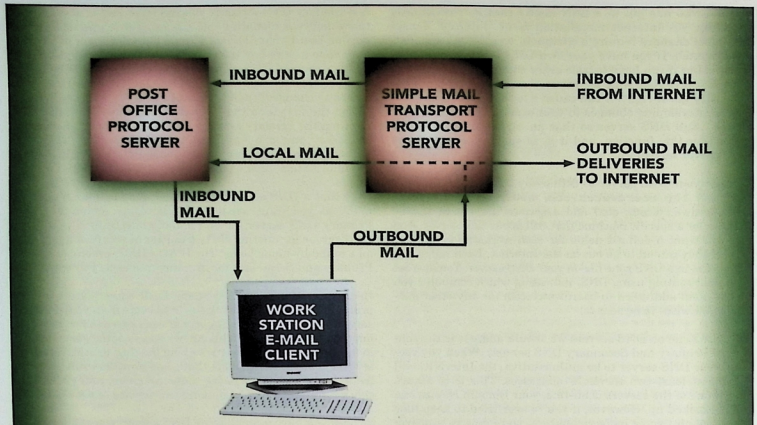

Figure 5: POP3 and SMTP Mail Servers

forms. The form for domain names may be fetched at the URL `ftp://rs.internic.net/templates/domain-template.txt`. This form comes with complete instructions on how to fill it out and send it in, as well as how to send them the $100 each name costs to register. Once you register your name are made by simply editing the text files on your DNS server. Like magic, the world will instantly be able to access your changed names.

Configuring DNS is easy once you understand it, but it does seem to be one of the toughest things to reach the "Oh, I get it! That's all there is to it!" point for new system administrators. We recommend the O'Reilly book ***DNS and BIND*** (O'Reilly & Associates, ISBN 1-56592-010-4) to help you get over the hump on this one. We've seen it make DNS pros out of many of the formerly lost. And they've just released a second edition with a lot of good information for Windows NT fans. **Http://www.ora.com**

E-MAIL SERVER

Probably the biggest reason to get a full-time connection to the Internet is to handle your own electronic mail. Here again, you can buy e-mail service from the provider on the other end of the wire, but if you want to control your own e-mail, be sure your data is not stored on other people's computers, run mailing lists of your own, etc., you will need your own e-mail server on your LAN.

We find most people who buy e-mail service, do so simply because they don't really understand how mail works. Don't feel bad, we've done mail for years and periodically still learn new things about how it works. But the basics of Internet e-mail are very simple. In fact, Internet mail is sent using the Simple Mail Transport Protocol (SMTP) so how hard can it be?

The essence of Internet e-mail is that it assumes that each network has a full-time SMTP server that can receive mail 24 hours a day. So you need an SMTP server on your LAN to meet this requirement. But SMTP only transports mail, meaning you also need some sort of destination for that mail. Here's where what are known as POP (Post Office Protocol) mailboxes come in. A separate server program, known as a POP3 server, creates destination mailboxes and allows a POP mailbox user to log in and retrieve their mail on their own time. Figure 5 shows how mail flows from the Internet, through the SMTP server into POP mailboxes, from the POP mailbox to your workstation mail client, and from your mail client back out to the SMTP server and out onto the Internet. This is how Internet e-mail operates, so if you have an SMTP server and a POP3 server operating on your LAN you can do any amount of Internet e-mail you want.

A brief digression... About this time the question of e-mail gateways usually comes up. If you are currently using a LAN e-mail system like MS-Mail or CC:Mail, you may think you need to convert Internet e-mail into and out of that mail system so your LAN users don't have to change anything. This can certainly be done, but in our experience it isn't necessary. Why? Because today's Windows e-mail clients all do POP/SMTP mail, so you can use them to send Internet messages directly to and from the SMTP and POP3 servers, while also sending e-mail to your LAN system all from the same screen.

Once you have set up an SMTP/POP mail server on your LAN, you can use it in the office as easily as on the Internet. What

we find happens is that about three days after Internet mail is installed, everyone stops using the old LAN system and starts sending each other mail using POP mail. They also notice that if they are on the road with an Internet connection, they can access the POP server from anywhere on the Internet and pick up and answer mail anywhere. This is the real benefit of the Internet, all your servers can be accessible from anywhere, and with e-mail this means that your personal mailbox can appear to travel with you. To do this with LAN e-mail systems becomes overwhelmingly expensive and complex. So in time, everyone ends up moving to the POP mail server rather than the LAN e-mail system, using the same client for both.

So it is our opinion that in most cases, e-mail gateways are not really important. They are expensive ($3,000 up to $12,000 for good ones), complex to install and set up, and in the end do a job that a few days after you have the Internet installed on your LAN no one will really want to do anyway. If you think you will need an e-mail gateway, we thus caution you to install Internet e-mail using a POP server first, let everyone use it for a week or so, and then see if you still think the e-mail gateway is a needed expense. We guess you'll save some money on this one.

The IPAD allows you to set up both an SMTP server and as many POP mailboxes as you wish quite easily. In fact, here is the configuration for a full setup to create two e-mail POP boxes for **jack@boardwatch.com** and **gary@boardwatch.com**. The IPAD allows you to establish a relatively simple text file to control your mail. We've titled ours POP3:

```
SERVER SMTP POP3
SMTP SCAN=60
POP3 jack@boardwatch.com jack oryx c:\pop3\jack
POP3 gary@boardwatch.com gary password c:\pop3\gary
FWDFROM *@boardwatch.com
REJTO *@boardwatch.com
```

The first line tells the SMTP server to pass inbound mail to the POP3 server. The second line indicates that the SMTP server should scan for outbound mail every 60 seconds.

The first POP3 line tells the IPAD how to handle inbound mail addressed to **jack@boardwatch.com**. It will store this incoming mail in a single file at **c:\pop3\jack**. If anyone logs onto the POP3 mail server as jack with a password of **oryx**, it will give them all the inbound mail it has collected and stored in **c:\pop3\jack**.

In fact, note that this logon to pickup mail from the POP3 server can happen from any workstation on the LAN, as long as it is configured to use **mail.boardwatch.com** as its POP3 server, and as long as it logs on as **jack** with password **oryx**. In fact, it will work from anyplace ON THE INTERNET, as long as the mail client is configured to use **mail.boardwatch.com** as the POP3 server, and the logon is **jack** with password **oryx**. That's a bit interesting. You can logon to any Internet account anywhere in the world, and still access your own personal mail box at the office.

You add additional POP3 e-mail boxes for additional users by simply adding another line for each user, and defining a different file for each user. Note that you can also define several names that use the SAME e-mail file, so that mail to **jack.rickard@boardwatch.com**, **jack@boardwatch.com**, and **jrickard@boardwatch.com** all wind up in the same POP3 e-mail box.

The **FWDFROM** configuration line allows anyone from **boardwatch.com** to use the IPAD as its SMTP forwarder (a configuration item the e-mail client will ask about). This means that outgoing mail is sent to the IPAD's SMTP server from where it is sent onward to the Internet. It also means that no one that is NOT in boardwatch.com can use the SMTP server to send mail, in an attempt to make it look like it came from boardwatch.com. The final **REJTO** line will cause any e-mail sent to a name at **boardwatch.com** that isn't gary or jack to be bounced back to the sender as "addressee unknown." We could instead decide we want to see these messages (people make up names for us on a regular basis) in which case we could create a whofor POP box that gets all unknown names with the following control line:

```
POP3 *@boardwatch.com whofor password c:\pop3\whofor
```

This would place all messages not addressed to either gary or jack in the whofor box which someone in the office could periodically pick up and review. The IPAD has simple configuration to do many more "stupid e-mail tricks" like forwarding

mail from one name to another, combining several names into one POP mailbox, setting up auto-responders to send canned responses to messages with certain addresses, etc. E-mail tends to get very personalized, and we're keeping these examples simple.

Next comes the task of configuring the e-mail client on the individual workstations to pick up mail in a POP mailbox. This seems to be confusing, so we'll follow our example all the way through to shed some light here too. In Eudora, the configuration for Gary's machine to use his POP mailbox (Assuming the IPAD is named **mail.boardwatch.com**) looks like:

POP Account: **gary@mail.boardwatch.com**
SMTP Server: **mail.boardwatch.com**
Return Address: **gary@boardwatch.com**

The name portion of the "POP Account" field is the name given in the POP3 command above. The name and address given in "Return Address" is the actual Internet e-mail address this POP mailbox is known by on the Internet. So if Gary is tasked with checking the **whofor** mailbox we defined above, he would configure Eudora as follows to pick it up.

POP Account: **whofor@mail.boardwatch.com**
SMTP Server: **mail.boardwatch.com**
Return Address: **gary@boardwatch.com**

Note here that if Gary responds to any of the messages in the **whofor** box, his messages will still say they came from **gary@boardwatch.com**. Only the POP Account has changed, not his e-mail address.

The final question that might arise from our example is "how did the mail addressed to **boardwatch.com** know to go to the SMTP server on the **mail.boardwatch.com** IPAD?" The answer to this lies in the DNS server setup we discussed above. In the DNS setup, e-mail is singled out for special treatment through the use of MX (Mail eXchange) records. So to have Internet mail addressed to boardwatch.com routed to the **mail.boardwatch.com** IPAD you insert the following DNS entry in your DNS server's boardwatch.com zone file:

```
boardwatch.com      IN     MX    10 mail.boardwatch.com.
```

This is a feature of the DNS server that allows mail for a given domain name to go to a computer on your LAN other than the one that has that name for all other Internet connections (www, ftp, etc.). So you can see again why having full control over your own DNS server becomes so important. As your use of the Internet evolves, many changes will occur in your desired domain name configuration. It is very limiting to have to communicate these changes to someone else, wait for them to make them active, and hope they get them right.

We like the IPAD's mail server (and have used it here for years) because it is so simple to turn on and configure. Also, because it is integrated into the IPAD, you don't have a separate computer tied up being an e-mail server. It integrates POP3 and SMTP into a single, easy to set up and use package (with the other systems, POP mail and SMTP often are set up so separately you aren't sure how they are related until you've spent a lot of time with them.

REMOTE ACCESS

Approximately 45 minutes after you get the office LAN up and running on the Internet, someone is going to ask you if they can cancel their home AOL account and just dial into the office. The problem you'll face is that this actually makes a lot of sense. At night, no one is IN the office, so the link is a bit lightly loaded after five. If you could dial into the office from home, and connect their via a 28.8 kbps link, then you could use the office connection to the Internet. If you're connected with ISDN or frame relay, this becomes even more attractive. Bingo. In a way, you've just graduated to become your own ISP as well.

Actually it isn't that hard. Our IPAD has an eight-port serial card in it. We connect a couple of modems and analog telephone lines to these serial ports, and simply dial in on those analog lines from home. The IPAD takes care of all the authentication and routing for a Point to Point Protocol (PPP) or Serial Line Internet Protocol (SLIP) dial-up connection and it will look just like any other ISP to the other end.

The IPAD has a simple text control file titled SLIP.USR that simply contains a one line entry for anyone you want to have dial access to your network.

```
bozo     clown 204.144.169.39/32        600        01
```

This line allows someone to logon as **BOZO** with password **CLOWN**. They will be assigned **204.144.169.39** as their IP number while they're online. The 32 indicates a netmask such that ONLY data intended for IP address 204.144.169.39 will be routed there. The next field indicates the max idle time in seconds. If someone calls in and no data passes for 10 minutes, we'll disconnect them. The next field is the max connect time in seconds. A zero means they can be on as long as they like. The final field indicates the number of users that can be logged onto the system at the same time under that logon name. In this case, we want to limit that to a single user.

Adding authorized users requires you to add a similar line with logon name and password for each user. That's about it.

The IPAD will also support dynamic IP number assignment where each caller simply gets the next IP number in a defined pool of IP numbers reserved from the 255 available in your network. We could, for example, assign 204.144.169.50 through 204.144.169.75 as a pool of IP numbers to be dynamically allocated as users call in.

There are actually several IPAD models available. The 2500 has two built in serial ports while others have 8, 16, 32, or even 64 serial ports. Over time almost all of our employees have wanted dial-up accounts from home. In this respect, the IPAD has an integrated "terminal server" to handle remote access duties, and we could probably handle about 600 users with the 64 port version by adding 64 modems and 64 analog telephone lines. We don't really need to. For us, eight ports is overkill.

At this point, you're pretty much down to installing a TCP/IP stack on each of the workstations. To do so, you will have to enter the IP number assigned to that specific machine out of your Class C address block of 255 IP addresses. Windows95 has a built in WINSOCK TCP/IP stack that isn't too difficult to configure. You control which machine gets which IP number entirely. You will also have to enter the IP number of the gateway router, in this case the IPAD, and the DNS server, in our case still the IPAD. You will also probably want to install an e-mail package that does POP3 mail and point it to the SMTP server, in this case mail.boardwatch.com, along with the logon name and password of the account at that workstation. And finally, install the desired web browser program. At

this point, the workstation is on the Internet, and the web browser will work quite nicely out the network card on the machine, through the local LAN, and out through the gateway router to reach any point on the Internet more or less independently. The e-mail program will access the POP mail server on the IPAD to get mail either on a regular schedule or on demand.

WEB AND OTHER SERVERS

If you have a full-time connection to the Internet, you'll likely want to put up your own web site on your own computer. After all, the history of computing has been that everyone wants to do all of their work on a machine of their own and the Internet is no different. Web servers have been profiled in ***Boardwatch*** often, so we won't go into details here on which one you might want to use, but in general you will set up a computer with the web server software and give it an IP address on your LAN.

The IPAD actually provides some basic servers for such things as FINGER, WHOIS, and even a rudimentary web server. It's sufficient to put up some basic company web pages.

But the good news here is that once you have connected your LAN to the Internet full time, adding a web server, a RealAudio server, a CUSEEME reflector, or any other type of server you want is simply a matter of installing the server software on a computer with an assigned IP number plugged into your LAN. You will at last have arrived at that wonderful point where you too can "assume an Internet connection".

SUMMARY

A standing full time connection to the Internet for a small office can be had for a couple of hundred dollars per month in connection charges and roughly **$5,000-$7,000** in equipment charges. The main advantage is that it brings control of your own electronic mail and domain name service in house. And it does not require a full-time UNIX guru on site to administer. You can do a surprising traffic in electronic mail, and even a surprising amount of web browsing, using a relatively modest 128 kbps ISDN connection or even a 28.8 kbps dialup connection.◆

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www.ascend.com

Trancell Systems, Inc
WebRamp IP Router
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(408)988-6363 (fax)
info@trancell.com
www.trancell.com

Farallon Communications, Inc
SO-Smart 635
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(510)814-5100 (voice)
(510)814-5025 (fax)
info@farallon.com
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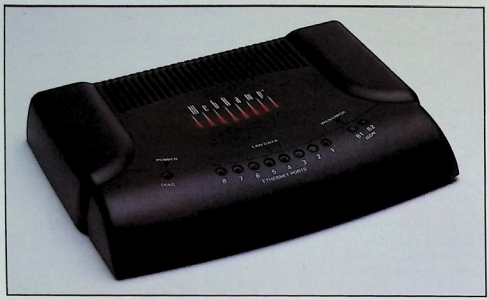
GADGETS AND GIZMOLOGY

by Gary Funk

WEBRAMP ISDN LAN/IP/ROUTER



One of the hottest areas of connectivity for the small office or home office revolves around ISDN LAN Bridge/Routers to connect a small local area network to the Internet using Basic Rate Interface 2B+D ISDN. The sophistication of these devices has grown to the point where in a single box no larger than an ordinary modem, they combine a router and the ISDN terminal adapter. And increasingly, they use BONDING (Bandwidth ON Demand INteroperability Group) to combine the two 64 kbps B or bearer data channels provided by Basic Rate Interface (BRI) ISDN into what looks and performs like a single 128 kbps link. They also generally add compression algorithms to increase that apparent data rate, and on web pages and electronic mail this is actually quite effective.

The cost of the actual ISDN connection varies widely depending on area. Broadly, across 3000 Internet Service Providers, 2B service averages $99.50 per month - though generally as high as $250-$300 for full-time standing connections. You will also need a BRI ISDN 2B+D telephone line from the local telephone company. Here in Denver, this runs $450 installation and about $70 per month.

So an ISDN connection is not nearly as inexpensive as a normal dialup connection. But the performance is actually quite good with apparent data rates of 200-300 kbps very common for most uses.

The king of this market has been Ascend Communications Inc. with their very popular PIPELINE series of ISDN Bridge/Routers. Many Internet Service Providers use their MAX series of remote access servers to handle varying combinations of both analog and ISDN calls. But the user end has traditionally been the PIPELINE.

Trancell Systems has introduced their WebRamp IP Router, which offers a couple of interesting twists. Most noticeably, the configuration and setup of the PIPELINE is...arduous. Trancell has done a stunning job of making configuration easier.

Further, the WebRamp also incorporates an eight-port 10BaseT LAN hub directly into the back of the device. This allows you to install NIC cards in your PC's, connect them to the WebRamp, and thus form a LAN.

Setting up the small office for email does require some work. You need to install Network Interface Cards (NIC) in each computer, and of course, make sure they work. If you have Windows 95 on all of these computers this is much easier to do. Once you have this done, you can also set up a small workgroup so your computers can share files with each other.

Setting up the WebRamp also requires some extra steps. You need to find an ISP that can supply you with an ISDN dial-up port. I suggest you look for an ISP that has an Ascend Pipeline 50 or MAX 4000. We found the WebRamp fully interoperable with the Ascend equipment. Tell the ISP you have a WebRamp and want ISDN service. You may also need to contact your local telephone company and order an ISDN BRI line.

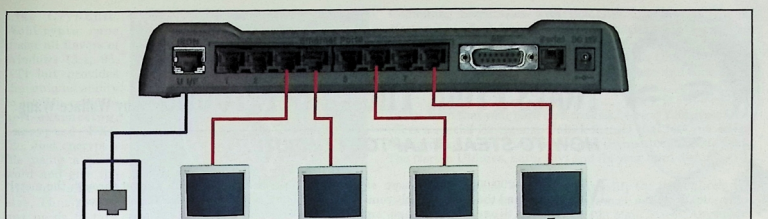
Included in the WebRamp package is a single worksheet of everything you need to know from the phone company and you ISP to configure the IP Router. One side of the worksheet is questions you will ask the telephone company. You will need to know if their switch is an AT&T 5ESS, NT DMS-100, Siemens, or other type and what software the switch uses. You will also need the ISDN phone numbers and SPIDs in some cases.

The other side of the worksheet consists of questions you will ask the ISP. You will be assigned a group of IP numbers and a netmask for each of your computers. The ISP will also tell you what his address is and the address for the Domain Name Servers (DNS) to use. You will also need the login name and password to connect your WebRamp to his equipment.

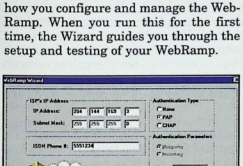
Once you have completed both sides of the worksheet and your ISDN line is installed, you are now ready to connect to configure the WebRamp and connect to the Internet. This takes about 10 minutes.

You've done all the work so now it's time to have fun. The WebRamp comes with the necessary power supply and two cables. If you are not familiar with ethernet, you will notice that one of the cables has a plug that looks like a phone plug but is wider. This is your Ethernet cable. Plug one end of this cable into the Network Interface Card in the computer. The other end plugs into the back of the WebRamp.

The other cable plugs into the ISDN line and into the ISDN Port on the back of the WebRamp. Connect the power supply and plug it into an AC outlet and you are ready to go. You should now have a red power LED and a green Ethernet port LED on. In a few seconds the green DIAG LED will come on and most likely the red WAN Error LED will also come on.



The next step is to install the WebRamp Wiz software. This single item is what makes the WebRamp stand out from other IP Routers I have seen. This is how you configure and manage the WebRamp. When you run this for the first time, the Wizard guides you through the setup and testing of your WebRamp.



The first section is a tutorial that will guide you through the setup and explain some key concepts on how the WebRamp and Internet work. The second section is the configuration of the IP Router. With your worksheet in hand continue through the WebRamp Wizard and answer each item is it comes up. Soon you will reach the point where the WebRamp runs its test and connects to the ISP.

By the time you reach this point, if the ISP and telephone company have done their job right, you are connected. You are ON THE INTERNET! It really is that simple.

Here we have an Ascend Pipeline 50 installed and were interested in testing interoperability between the two devices. Our Pipeline 50 is normally set up to do Bridge routing but the WebRamp needs IP Routing. Normally this is not a problem as a real ISP will have his equipment set to do IP routing, but in my case, I had to learn how to make the Pipeline 50 be an IP router. Once this was done, the WebRamp and Pipeline 50 passed data like they were old friends.

When you configure the WebRamp you are given the choice of using only one of the 64 kbps channels, both channels, or letting the WebRamp decide when to use the second channel. For normal operation, such as email or web browsing, one channel is fine. If your phone company charges by the minute for connect time, this can save you money.

By configuring the second channel dynamically, it will only be used when needed, such as in downloading very large files. You can also control the add and drop time for the second channel limiting the use of the second channel to only when really needed.

Once the WebRamp was up and running, I was able to do everything I could do from my other computer connected directly to our Boardwatch Office LAN, just slower. After all, ISDN at 128 kbps is not as fast as a T1 at 1.544 mbps. But when doing e-mail or web browsing, I hardly noticed the difference. The only time it did seem slow is when ftping 50 Mbyte files. But even then, I got transfer rates of 12k to 13k cps.

The WebRamp IP Router has a suggested list price of $899 and comes with all necessary hardware and software. The software is available for Windows and Macintosh and the hardware comes with a one year warranty. Trancell was founded in 1993 and employs more than 40 at its headquarters in Santa Clara, California.

Although we tested the WebRamp IP Router, Trancell has just announced their new WebRamp Entre. This device adds two RJ-11 analog ports allowing you to connect both an ordinary voice telephone and a fax machine to the ISDN line, and drops the number of 10BaseT ports from eight to four. This device allows you to remain connected to the Internet while also allowing a voice call or fax. It also supports advanced calling options such as call waiting, voice messaging, and caller ID. You can allow incoming calls to interrupt data activity or not as you like. ◆

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Notes From The Underground

by Wallace Wang

HOW TO STEAL A LAPTOP COMPUTER

More than 200,000 laptops were stolen last year and the numbers only continue to increase. Since laptops are small, portable, and easily hidden (and sold), they've become the hot new electronic commodity for thieves to steal and sell.

But lest you think that crack addicts or hardened criminals are waiting to smash your windows and snatch your laptop off your desk, a growing number of laptop heists are occurring among corporate spies digging for information on their competitors. An average laptop computer could hold megabytes of proprietary information ranging from plans for new products, marketing strategies, names and addresses of customers, or actual source code to corporate programs. In many cases, the laptop can be replaced but the valuable information stored on its hard disk cannot.

Since the latest generation of laptops can now be carried in one hand, it's not hard to see how quickly a thief could disappear with your laptop computer. To protect their laptops, many people rely on cables that either attach to the computer with an adhesive or connects into a special security lock that many laptops now offer.

Just don't be surprised if your laptop disappears anyway. Ordinary nail polish can dissolve the adhesives used to glue a cable to a laptop, and laptop security locks can be easily defeated with a few well-placed blows of a hammer to snap them off. Then there's the simpler solution of just using wire clippers to snap the cable in half.

For anyone traveling with a laptop in an airport, hide it. Walk through any airport and you'll find that many people carry their laptop computer in a distinctive black carrying case, which is easily recognizable to a thief, yet bland enough to blend in to the hectic surroundings of a busy airport. Instead of carrying your laptop in a case that screams out its existence, dump the laptop in a worn paper shopping bag, wrap it in a T-shirt or jacket, and disguise your laptop as a shopping souvenir from an overpriced airport gift shop.

If you're going to lose your laptop in an airport, the most likely place will be at the metal detectors. One person will step in front of you, loaded down with pockets full of metal objects (keys or coins), and wait until you pass your laptop on the conveyor belt for the X-ray machine. Then while this person beeps the metal detector and detains the passengers behind him (including you), a second person waits on the other side and picks up the laptop at the end of the conveyer belt. By the time you get through the metal detector, your laptop computer will be gone.

So if you're going to protect your laptop, keep it in your sight at all times and hold on to it until you can walk through those metal detectors without someone in front who might delay you. While this can reduce the chance that your laptop will disappear, what can you do if your laptop computer gets stolen anyway?

ENCRYPTING YOUR DATA

Since the real treasure of your laptop is the data stored on the hard disk, simply store all your data on floppy disks and keep those floppy disks separate from your laptop. In case the idea of juggling several boxes of floppy disks doesn't appeal to you, encrypt your hard disk data instead. That way if someone does get a hold of your laptop, they won't be able to read any of your files.

To encrypt individual files, directories, or your entire hard disk if you're using Windows 3.1, Windows 95, Windows NT, look at a program called CrypEdit (**http://www.oz.net/geniousa**). Unlike other types of encryption programs, CrypEdit uses a proprietary encryption algorithm. To some people, this might mean that CrypEdit's encryption hasn't been battle-tested but to others, this means that hackers won't have the slightest idea how to crack it since they can't study the encryption algorithm in a textbook. For anyone concerned about CrypEdit's proprietary encryption algorithm, Genio USA (the creators of CrypEdit) has even offered a $1,000 reward to anyone who can crack its encryption methods.

For corporate users, encryption can backfire. If a disgruntled employee encrypts valuable data and then leaves, it can be impossible to decrypt that data to retrieve it. To prevent this from happening, CrypEdit provides something called key-sets. A key-set defines multiple security levels. People at the top security level can always decrypt anything encrypted by people at the bottom security level. (Of course, if someone manages to steal the password to the top security level, then they'll also be able to decrypt anything encrypted by that particular key-set file.)

If you receive a file encrypted by CrypEdit, you must also use a copy of CrypEdit to decrypt it. This means that you need multiple copies of CrypEdit and may have to teach others how to use CrypEdit as well. If you just want to pass encrypted files to other people but don't want to force them to learn another program just to decrypt your file, take a look at McAfee's WebCrypto program instead (**http://www.mcafee.com**).

Wallace Wang is the author of ***CompuServe For Dummies***, ***Procomm Plus for Dummies*** and ***Visual Basic for Dummies*** (all published by IDG Books) as well as ***Surfing The Microsoft Network***, published by Prentice-Hall). He also does stand-up comedy in the San Diego area, and has appeared on A&E's "Evening at the Improv" TV comedy club. He can be reached via e-mail at: **70334.3672@compuserve.com** or **bothekat@aol.com** or **bo_the_cat@msn.com**

Like CrypEdit, WebCrypto runs under all flavors of Windows (3.1, 95, NT) but provides the unique ability to let you create a self-extracting, encrypted EXE file. Just encrypt a file using a password and give the file to someone else. That person just needs to type the right password and the file magically decrypts itself without the need for a second copy of WebCrypto.

Best of all, WebCrypto is shareware, which means you can download a trial copy of the program and examine it for yourself. (The shareware version uses a 40-bit encryption algorithm to make it "safe" for export outside the United States. The commercial version offers the 160-bit Blowfish algorithm for greater security.)

For an encryption program geared more towards laptop users running Windows 95 (Windows 3.1 and Windows NT are not supported), try Norton Your Eyes Only, an encryption program that gives you five different encryption algorithms to choose from (RC4, RC5, DES, Triple-DES, and Blowfish). Unlike other encryption programs that require the user to take the time and effort to run a separate encryption program, Norton Your Eyes Only (kind of a stupid name), encrypts data transparently in the background.

Just encrypt a directory using your favorite encryption algorithm (Blowfish is the most secure). Then when you want to access a file (such as a WordPerfect document) stored within that encrypted directory, Norton Your Eyes Only pops up a dialog box asking for the password. Type in the correct password and you can start modifying the file as if it were never encrypted. The moment you save the file, Norton Your Eyes Only automatically encrypts it again so you don't have to remember to do it yourself.

By making encryption and decryption virtually mindless (beyond typing the correct password), Norton Your Eyes Only insures that you'll be more likely to encrypt your data without going through the time and trouble to decrypt, edit, and encrypt a file using a separate encryption program.

For further protection, Norton Your Eyes Only offers a BootLock feature that prevents anyone from booting up your computer without the right password. BootLock even prevents people from booting up from a floppy disk, thereby keeping your hard disk data safe from prying eyes.

Since you might want to take a break from your computer once in a while, Norton Your Eyes Only offers a ScreenLock feature that automatically locks your keyboard the moment your screen saver appears or your laptop computer's suspend feature kicks in. After the ScreenLock feature activates, you need to type the right password to unlock the keyboard and allow access to the computer again.

Combining ScreenLock with BootLock and file encryption, Norton Your Eyes Only provides the maximum protection for your laptop data with a minimum of fuss. If someone tries to break into your computer, Norton Your Eyes Only even keeps an audit log that lets you know the exact date and time someone tried to pry into your computer.

In the event that your hard disk crashes, Norton Your Eyes Only offers a special Emergency Unlock feature that lets you access the hard disk to run a utility program (Symantec suggests using The Norton Utilities, naturally) and fix your hard disk.

For greater security, you can even modify the ScreenLock and BootLock screen to display a message such as "This laptop computer was stolen from John Doe at 123 Main Street, Anywhere, State." The only way a thief could erase this message would be by guessing your password or cracking the Norton Your Eyes Only encryption. By visibly displaying such a message on your laptop, you can discourage thieves from selling your laptop or possibly encourage its safe return by providing your address or phone number where they can contact you.

TRACKING YOUR LAPTOP

Even though a laptop can be replaced, it's still cheaper to get it back rather than buy a new one so you don't have to explain to your boss how you lost a $2,000 computer on your last business trip. To help you retrieve your laptop, download a copy of CyberAngel (**http://www.sentryinc.com**), available for Windows 95 only.

CyberAngel hides on your hard disk and unobtrusively waits for you to type in your secret password. If you don't type in the correct password, CyberAngel assumes that an unauthorized user is accessing your computer, turns off your modem's speaker, and silently dials CyberAngel's Security Headquarters to report the intrusion and allow CyberAngel's headquarters to trace the call to track down your laptop computer. When you pay CyberAngel's activation fee of $39.95, you get a full year of 24 hour monitoring service and up to 36 free false alarms.

By loading your laptop with an encryption program like Norton Your Eyes Only plus a tracking program like CyberAngel, you can make your laptop extremely annoying to any thief unlucky enough to pluck your laptop out of a crowd. Laptops may be easily stolen, but that doesn't mean your laptop needs to go quietly without a fight. ◆

Java Jitters

by Doug Shaker

GETTING MY FIRST JAVA PROGRAM TO WORK

This is my third column in the "Java Jitters" series, and I'd like to take a little space to let you know what I am trying to do with it. I used to write another column for Boardwatch called "Beginner's Luck" in which I described my experiences trying to put together a bulletin board system. I didn't edit my experiences much. In particular, I didn't confine myself to the things I did right. I wrote about what I wanted to do, made my decisions in public, told you what happened when I tried it, and talked about what went right and what went wrong. Whenever possible, I emphasized the humor in the situation.

Doug Shaker is a free-lance technical writer in California. He has one wife, two children, three pets, and five computers. The computers are obviously out of hand. He can be reached via e-mail at **mailto:doug@theshakers.org**. Yes, that is a personal Internet domain. We told you the computers were getting out of hand.

I plan to do pretty much the same in "Java Jitters." You will get to see how I learn Java, warts and all. The column will not be a particularly good place to get Java instruction - but there are hundreds of books that purport to provide you with that. This *will* be a place where you can get a sense of what the journey to Java competency is like and the kinds of mistakes that can be made along the way. If I get a chance to comment on the absurdities of Java hype, computer marketing, or the human mind, then so much the better.

While I am exploring Java, I don't want to just talk about Java programming in the abstract. It's too dull. It's too easy to get stupid little menus up on the screen that let you choose between "Apple," "Peach" and "Pear" and then feel like you have really accomplished something. I want something real to work on, a grand and glorious vision to work toward. Something that will be fun to work on and which will satisfy some deeply felt need.

But wanting to "satisfy a deeply felt need" doesn't much narrow down the field of possible applications. I don't know how to write a Java application that cures cancer or feeds the world's hungry. While I was trying to think of an application for my "grand vision," I remembered something that an old boss of mine once said to me. He was a fairly successful salesman and he claimed that all purchase decisions were motivated, at base, either by fear or by greed. Fear or greed, eh? One of those could be my deeply felt need. Well, I flipped a coin, and greed won. The next question was how to come up with a greed-oriented application that I could do in Java.

Of course, the answer is to find a get-rich-quick scheme that could be implemented in Java. I suppose I could try to find a way of making a chain letters or pyramid schemes work in Java, but these are too crass, too slimy, too illegal for me. Stock market speculation, on the other hand, is legal, classy and it has a long tradition as a intellectual's game.

I figure I can pull quote histories off the net, for free, then use some fancy do-it-all-for-you computational technique like neural nets or genetic algorithms, to build a system that suggests trades. Then I can focus that on a couple of out-of-the-way small stocks that don't have much analyst coverage and — voila! — I'll be rich! And if you copy the code out of the article or download it from the Boardwatch web site, maybe you will be rich too. Yeah, sure, and Bill Gates will invite us to his house for pizza and give us an extra million because he likes our jokes. OK, maybe we won't get rich, but doesn't it sound like it would be more fun than doing another address book application?

The next thing we *ought* to do is design. I *ought* to figure out what the main object in the application will be, but truthfully, I don't have the foggiest idea how neural nets work yet. And I probably won't for several months. Hell, I don't even know how to program in this language yet. You think that will stop me? Not on your life.

Here is what I do know. Java is based on objects, so the design, when I eventually do it, will be in the form of a set of objects that send messages to one another. Java is deeply tied to the net, so there is probably an existing object in the Java class library that will get web pages for me, if I ask. There are probably not any neural net implementations in Java yet, but porting a C++ implementation probably won't be that hard since Java uses a simplified version of C++ syntax. It looks do-able to me.

When I try to think of the objects I will need, I think I want a set of objects that get quotes from the net – the Gatherers, another set of objects that store quotes on my disk and parcel them out to other objects that want the data — the Librarians; another set of object that implement a basic neural net capability - the Neurons; another set of objects that manipulate the Neurons to get a good model – the Analysts; and finally a set of objects that run the models on current data and recommend trades – the Brokers.

This isn't exactly a design, but it is close enough to let me feel like I can proceed a little. The next thing I want to do is make sure I really can get information off the net with Java.

Most of my Java books are no help at all, but ***Exploring Java*** by Niemeyer and Peck (ISBN 1-56592-184-4, O'Reilly & Associates, US$24.95) has this interesting code fragment:

```
URL url = new URL("http://server/index.html");
DataInputStream dis =
new DataInputStream( url.openStream() );
String line = dis.readLine();
```

which they claim will read a single line from an HTML file. I will try to explain the code fragment, but first let me rewrite it a little. For some reason, Niemeyer and Peter have followed the usual but brain dead practice of using confusing object names in their coding example. As a result, we have a particular URL with the name of url being a member of the class URL. I don't know about you, but I find this confusing.

If I add line numbers and give everything some more useful names, I get:

```
URL boardwatchHomePage = new URL( "http://www.
boardwatch .com/");                          //1
DataInputStream bwHomeInput =                //2
   new DataInputStream( boardwatchHomePage.open
Stream() );                                  //3
String bwLine = bwHomeInput.readLine();      //4
```

I find this to be more understandable.

In line 1, in the part of the code that is to the left of the equal sign, we declare an object named boardwatchHomePage which belongs to the class URL. Then, using the equal sign, we assign to boardwatchHomePage a value. That value is a new instance of the class URL that is created using the actual URL "**http://www.boardwatch.com**".

I don't know why you need to both declare the variable to be a member of a class and explicitly build a new instance for it. It seems to me like it would have been simpler if you could type something like

```
boardwatchHomePage = new URL("http://www.board
watch.com/") ;
```

but that doesn't work in Java. I suppose there is some sound, but obscure, philosophical argument for not doing things that way, but don't ask me what it is. Even if it was just a stupid mistake, they aren't going to change things now.

Well, moving right along, in line 2, we create a new input stream which we call **bwHomeInput**. If you don't know what an input stream is, you will have to look it up. I'm not sure what it is really, but I don't let it get in my way. I think – remember, I am a beginner here – I think input streams are what real input looks like after the operating system has finished caching and buffering and polishing and buffing it. Something like the difference between tap water and a lake. The lake is where the water comes from, but a faucet is how we get it, usually.

In line 3 we use the **openStream** method of our new boardwatchHomePage object to get us an input stream. That input stream is what gets stored in **bwHomeInput**. In line 4, we declare a new String object called **bwLine** and we assign it to be whatever we get by reading a line from the **bwHomeInput** input stream. I have read enough Java instructional texts to know that you can probably get the stuff in bwLine to print by using System.out.println(bwLine).

However, things are a little more complicated than that. First off, a Java application needs a class to hold it and the class needs to have a main method in it. And, in case your user wants to call the application with any command line arguments, the main method needs to take a set of string arguments. This means that the minimal Java application looks something like:

```
class TinyApp {
public static void main(String args[]) {
      System.out.println("Hello");
      }
}
```

If we cut our code out and paste it into the middle of minimal application, we are starting to get close to something that works:

```
class HelloURL {
public static void main(String args[]) {
    URL boardwatchHomePage = new URL("http:/
/www.boardwatch.com/");
    DataInputStream bwHomeInput =
        new DataInputStream(boardwatchHomePage
openStream());
    String bwLine = bwHomeInput.readLine() ;
    System.out.println(bwLine);
    }
}
```

However, when I tried doing just this thing, I got error messages like:

```
Error: E:\Software\cafe\PROJECTS\HelloApplet\HelloURL
.java(9): Class
URL not found in type declaration
Error: E:\Software\cafe\PROJECTS\HelloApplet\HelloURL
.java(9): Class
URL not found in new
```

The compiler is telling me that it doesn't know where to find the definition for the class URL. As it so happened, neither did I. But, after searching through the book a little, I found out that the line:

```
import java.net.URL;
```

is what the compiler was looking for. I put it at the beginning of the file. It doesn't tell me where to look for the definition, but it seems to be good enough for the compiler.

I tried compiling again, and found out that I also needed to tell the compiler where to find the definition for DataInput-Stream. A few minutes with the Café help file, let me know that

```
import java.io.DataInputStream
```

was the magical incantation that I was looking for.

Now, I thought I had a prayer of getting the code to work. Nope. I tried compiling again and found the following error messages:

```
Error: E:\Software\cafe\PROJECTS\HelloApplet\
HelloURL.java(10):
Exception java.io.IOException must be caught, or it
must be declared in the throws clause of this method
Error: E:\Software\cafe\PROJECTS\HelloApplet\
HelloURL.java(9): Exception
java.net.MalformedURLException must be caught,
or it must be declared in the throws clause
of this method
```

I don't really know what is going on here, but I do know it has something to do with exception handling. Exception handling is just like error handling, but with an attitude, a nose-ring and short black leather dress. It's the 90s equivalent, the object-oriented equivalent, of error handling.

When I went and looked it up, I found out that the syntax for exception handling is:

```
try { code.which.will.generate.errors }
catch (ErrorName e1) {code.to.handle.error.e1}
catch (ErrorName e2) {code.to.handle.error.e2}
```

So, I changed my code to

```
import java.net.URL;
import java.io.DataInputStream;

class HelloURL {
public static void main(String args[]) {
      try {
      URL boardwatchHomePage = new URL("http://www
.boardwatch.com/");
      DataInputStream bwHomeInput =
          new DataInputStream( boardwatchHomePage
          .openStream());
      String bwLine = bwHomeInput.readLine() ;
      System.out.println(bwLine);
      }
      catch (java.net.MalformedURLException e )

      {System.out.println("That's not a good URL in my
            innards!");}
      catch (java.io.IOException e)
      {System.out.println("Something wrong with the IO
      stream.");}
      }
}
```

I started it up and nothing happened. It just kind of hung there. But I didn't have my PPP connection to the net going. Maybe it was waiting for a valid connection to the web. I terminated my little Java program, started up my connection to the net, restarted my little Java program and - whammy! - and I got the following line:

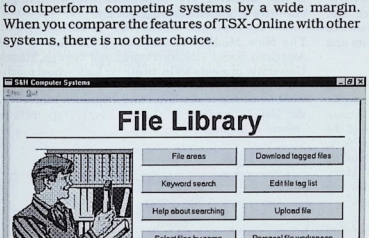
```
<html><head><title>BOARDWATCH
MAGAZINE</title></head>
```

in my output window! I had a Java program that could grab something off the net!◆

TSX-Online

The Complete Internet Information Server

TSX-Online™ is a complete Internet/intranet information server system. Its wide range of features allow you to be an ISP, a World Wide Web server or a high-speed information retrieval system. And the Graphical Client allows your users to access the system with full graphics from Windows '95 or NT. The 32-bit architecture of TSX-32 with its sophisticated scheduling algorithm enables it to outperform competing systems by a wide margin. When you compare the features of TSX-Online with other systems, there is no other choice.



The TSX Graphical Client software allows full graphical access to all the features of TSX-Online.

The most complete ISP package available

TSX-Online provides TELNET, FTP, Batch FTP, e-mail (SMTP, POP servers, personal address books), mailing lists, Usenet news groups (NNTP or satellite feed) and PPP and SLIP connections with PAP authorization protocol. The multi-user capabilities allow hundreds of simultaneous users connected to the Internet.

Powerful WWW server

The TSX-Online Web server uses special threading techniques along with caching to provide efficient service to many incoming Web users. CGI scripting is supported from C, PERL and TPL programs. The server also provides multiple domain name support, source includes and web page hit counters.

Versatile Graphical Client Software

The Windows Graphical Client for TSX-Online allows remote client/server access to the system over TCP/IP socket connections. This provides a full graphical interface to the Online system for both dial-in (PPP) callers and users accessing the system through the Internet. The client maintains a continuous socket connection during each session thus avoiding the overhead of reconnecting for each screen. The Windows client supports all of the TSX-Online services such as file library access, newsgroups, e-mail, chat, etc. File downloads are performed in the background so the Online user does not have to wait for them to complete. All client/server packets are encrypted for security. Using the TPL programming language, you can develop your own dynamic client/server applications.

The TPL Programming Language

TPL is a full programming language similar to C that provides programatic control over the TSX-Online system. TPL has dynamic string variables, full B-tree database support, lightning fast text file keyword searching with boolean expressions, TCP/IP socket I/O, dBASE-like input screens, e-mail generation, file library management, functions to display screens with the TSX-Online Windows Graphical client, and many other features.

Clustered Networking Capability

TSX-Online's clustered networking capability allows your system to expand beyond the limits of a single computer. Cluster nodes seamlessly integrate shared and distributed resources with automatic network packet routing. This incremental growth path preserves your initial investment while providing incredible flexibility.

E-mail: info@sandh.com
Telnet: sandh.com
WWW: http://www.sandh.com
Fax: (615) 321-5929
Voice (615) 327-3670
BBS: (615) 320-1820

s&h computer systems, inc.
1027 17th ave south
nashville, tn 37212 usa

EDUCATION LINK

by Rea Andrew Redd

D.I.Y. REVOLUTION

Heaving spools of cable, running wires through ceilings, installing modems, a guesstimated 100,000 volunteers in 1996 have donated over 1 million hours of grunt work. Individuals, coming from over 60 employers such as Sun Microsystems, TCI, Inc., Public Broadcasting Stations, knocked elbows with school administrators, faculty, and custodians, parents and students, even local and state elected officals to hardwire about 5,000 school buildings. In March and October, 3,500 California schools got hardware/wires installed and a few less than 300 of these got up and running connections.

Rea Andrew Redd lives and works in southwestern Pennsylvania where he manages a high school library, teaches European history and Scholastic Achievement Test preparation. On occasion, he reenacts American Civil War battles with the Ninth Pennsylvania Reserves, an historic, military impression unit. E-mail Rea at: **mailto:redd@genesis.duq.edu**

NetDay, it's now called across America. John Gage, director of the Science Office for Sun Microsystems, and other colleagues, have corralled about 30 states and the District of Columbia to wire about 20% of the classrooms in their area to the Internet. New York, Connecticut, Maine, Mississippi and North Carolina appeare to have taken the commitment to heart. Those states organized public and private sector volunteers and this autumn laid wires in buildings.

To take advantage of all this volunteer labor and hardware/wire installation, the wetware has to be trained. TCI, Inc. has committed itself to establishing educational technology centers for faculty education. To find out how your state is organizing its volunteers call **1-800-556-3896** or visit the Web site **http://www.netday96.com** If you need free cable modems, your community might be one of the lucky ones; call Cable in the Classroom at **703-845-1400** or visit its Web site at **http://www.ciconline.com**

CABLE IN THE CLASSROOM ONLINE

TEXTBOOKS: CAN'T LIVE WITHOUT 'EM, CAN'T LIVE WITHOUT 'EM

And this is particulary true in history classrooms. 'T'is widely quoted that "History is Biography." In other words, "History is a damned good story." But, for the most part, somehow those good stories don't get into text books. It is up to the history teacher to tell those good stories; and just like good literature the story is in the details, the "telling anecdote." Now, just where on the 'Net are those good stories and how do I get the students to them.

Bill Tally (**BTally@edc.org**) has a few ideas about that dilemma. Their are virtual pieces of the past on the Web; online archives of photographs, films, and audio recordings require their own methods of interpretation. Text have one set of rules which students use to look closely and learn about the past; other media have another set of rules. Tally helps teachers develop new methods for these multimedia resources. Online archives are sometimes overwhelmingly extensive or sometimes fragmentary.

The New Media Classroom, sponsored by the American Social History Project and George Mason University presents an institute for high school teachers which helps clarify the methods and strategies for working with primary, firsthand, historical sources on the 'Net. Tally's favorite Web sites for history include several of my own:

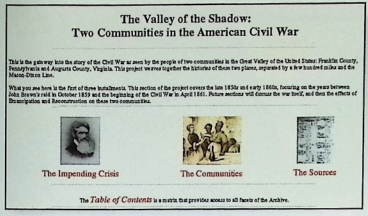
THE NEW MEDIA CLASSROOM

NARRATIVE, INQUIRY AND TECHNOLOGY IN THE U.S. HISTORY CLASSROOM

A National Endowment for the Humanities Faculty Institute

New Media Classroom
http://web.gmu.edu/chnm/nmc/

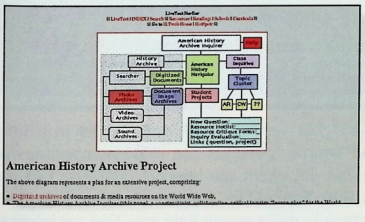
American Memory
http://rs6.loc.gov/amhome.html



Valley of the Shadow
http://jefferson.village.Virginia.EDU/vshadow2/

Letters from an Iowa Soldier in the American Civil War
http://www.ucsc.edu/civil-war-letters/home/html

Gilder/Lehman Slave Narratives
http://vi.uh.edu/pages/mintz/primary.html



Student Research on American Wars
http://www.ilt.columbia.edu/k12/history/

INGENIUS

Ingenius, once known as Xpress, presents Ask A.N.D.I.E., a multimedia research tool which provides current events, politics, sports, business, weather, social trends and stock reports. Call **800-772-6397** or visit its Web site at **http://www.ingenius.com** to learn about this subscription service. It fits hand-in-glove with Cable in the Classroom, a service which provides support materials for educations programs on television; over a dozen networks, ranging from A&E and The History Channel to MTV and Court TV, cooperate with Cable in the Classroom to develop lesson plans and showcase students' classwork.

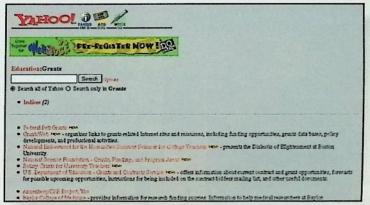
MEMO FROM THE DEEP POCKETS DEPARTMENT

Dennis M. Norris (**dnorris@greatlinks.cic.net**) directs development and public relations for the Metropolitan School District in Perry Township, Indianapolis and is the executive director of the township's Education Foundation; he sees grant writing as either reactive or proactive. Reactive grants are those which have been established by the federal, state, or local governments, private or public foundations, corporations or local civic organizatons; an educational problem is identified and grants are awarded to experiment in solving the problem. Proactive grants are those for which you take the initiative project. Vague guidelines and mission statements characterize these funds.

Norris sees the following as places to find reactive grants:

U. S. Department of Education
gopher://gopher.ed.gov/II/announce/competitions

Grant Writer's Guide to the Internet
gopher://gopher.uidaho.edu:70/IIs/e-pubs/grant



Yahoo Education Grants Link
http://www.yahoo.com/Education/Grants

Infoseek Grants
http://www2.infoseek.com/Titles?qt=grants

Public School Bulletin, Quinlan Publishing Company
email: quinlanp@quinlan.com

Two sources accessible at present through voice phone are:

Educational Grants Alert,
Capitol Publications
800-655-5597

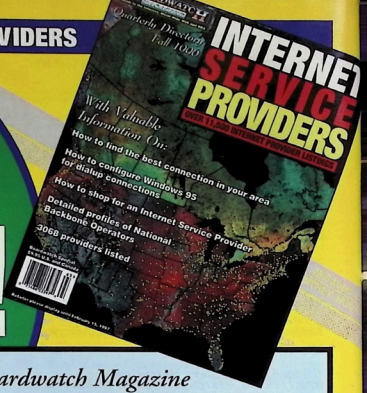
Catalog of Federal Domestic Assistance,
Government Publications Office
202-783-3238

For Proactive Grant Opportunities
The Chronicle of Philanthropy
800-347-6969
subscriptions@philanthropy.com

The Foundation Reporter, ***The Foundation Directory***, and ***The Directory of Corporate and Foundation Givers***, publications of the The Taft Corporation
800-877-8338 ◆

DIRECTORY OF INTERNET SERVICE PROVIDERS

IT'S HERE!



In addition to the provider directory the *Boardwatch Magazine Directory of Internet Service Providers* also contains valuable information on:

Detailed instructions on how to get connected to the Internet

Why get on the Internet

How to configure hardware to get on the Internet and how to use it once you're there

The history of the Internet, its current trends and where it's going in the future

How many people are really on the Internet and who they are

and much more!

The *Boardwatch Magazine*
Directory of Internet Service Providers
is for anyone who wants to get connected to the Internet now or stay connected to it for the least cost.

The Directory of Internet Service Providers, for the first time ever in a printed source, contains the most comprehensive information you can get about the Internet. The heart of the Directory is over 11,500 listings of Internet Service Providers nationwide. The directory is designed to help you find an Internet Service Provider...fast. Organized for easy reference by area code, it details everything you need to know about an Internet Service Provider including location, voice telephone number, total bandwidth and number of dial-up ports. It also includes the services they provide and most importantly their prices!

All this for only $9.95

Available NOW where ever you find Boardwatch Magazine or order by phone for $9.95 (plus $4.00 S&H).

Call today 1-800-933-6038

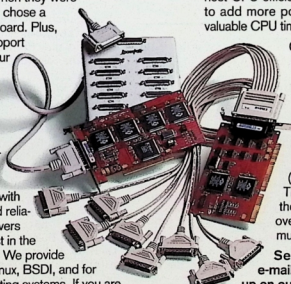
BOARDWATCH MAGAZINE
Guide to Internet Access and the World Wide Web

NEXT GENERATION TECHNOLOGY, EASIER TO INSTALL, BETTER SOFTWARE DRIVERS, FEWER COMPONENTS, HIGHER PERFORMANCE... AND STILL LESS EXPENSIVE THAN DIGI'S ACCELEPORT!

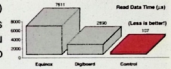
THAT'S WHAT YOU GET WHEN YOU BUY A COMTROL ROCKETPORT.

And not only that! You also get reliability, quality, and ease of use. And it's what companies like Jack-in-the-Box, Super America, and BMW got when they were looking for peripheral control and chose a Comtrol serial communications board. Plus, they receive full, personalized support from technical experts and 24-hour BBS access.

RocketPort performance is driven by specially designed ASICs, which integrate a 36 MHz RISC processor and 8 ports into one chip for a consistent application of power — from 8 to 128 ports. This 80% reduction in components provides you with unequaled performance, cost and reliability. And, Comtrol's software drivers and technical support are the best in the industry, making it easy to switch. We provide drivers for SCO UNIX, SVR 4, Linux, BSDI, and for Novell, Microsoft and other operating systems. If you are already using one of these drivers, all you need to do is install your RocketPort card. I/O mapping eliminates memory conflicts and allows plug and play compatibility. The RocketPort is available with PCI, ISA, or Micro Channel bus interfaces.



RocketPort also gives you 30 times faster processing! This host CPU efficiency allows you to add more ports or free up valuable CPU time.



Comtrol began the serial controller industry and has been meeting serial data communication connectivity needs longer than anyone. In a recent benchmark test, Comtrol's RocketPort serial controller "excelled in all comparisons and is unquestionably the superior product by every measure." RocketPort is the industry's fastest, most reliable controller with the highest MTBF (mean time between failure) in the industry. That's why Novell is using the RocketPort in their demo labs. And it's why we've shipped over half a million units since we created the multiport industry in 1982!

See for yourself! Call 1-800-926-6876, e-mail us at INFO@COMTROL.COM, or look us up on our website: http://www.comtrol.com/BW Ask for our Performance Benchmarks and our On-Board Reseller Program. Comtrol provides a 5 year limited warranty and a 30 day risk free trial for all products.

SCO OK

yes NetWare Tested and Approved

Microsoft Windows NT Compatible

COMTROL Powerful Choices

RocketPort MultiPort Serial Boards

MANNING THE WIRES

by Ric Manning

WEB SHOPPING SITES STRUGGLE TO DRAW A CROWD

For two years, Aliza Sherman pestered J. Crew to set up shop on the World Wide Web. Sherman hoped her company, Cybergrrl Inc., might be hired to develop the site, but that wasn't her main interest.

"I just like their clothes," she said. "I don't like to shop, so I wanted to be able to order them online."

Late last year, J. Crew finally arrived on the Web (**http://www.jcrew.com**), but the site was far from what Sherman had in mind. The site accepts orders for merchandise, but only if you have a printed catalog. There's no online catalog. In other words, it's not much different from a telephone ordering center.

"They are still my fav clothing company and catalog company," Sherman said via e-mail. "But right now, I'd rather pick up the phone and call in my order - and I'm a person who looooooves to order online."

Analysts have been predicting big things from online shopping. Fulton McDonald, a retail consultant with International Business Development Corp., told Bloomberg Business that the Internet will drive half of today's retailers out of business by 2010.

But if that's going to happen, electronic merchants better pick up the pace. Last year, online shoppers spent about $1.3 billion, according to Jupiter Communications, a New York-based market research firm. That's pocket change compared to the $75 billion spent through traditional catalog sales. Even if the online shopping market tops $7 billion in 2000, as Jupiter predicts, it will still be a fraction of the total catalog market.

When Advertising Age magazine asked 500 Web users what they do when they're online, 82 percent said they gather news and information but only 15 percent said they shop. Among favorite online activities, shopping ranked well behind chatting, posting to bulletin boards and playing games.

Some of the big names in the computer industry would like to change that. Microsoft, AT&T and IBM all recently announced new products and services designed to boost online retailing.

Microsoft hooked up with VeriFone — the folks who make sure you have enough credit on your card to buy that new TV — and a half a dozen top transaction processing companies. The partners built a bundle of payment services built into Microsoft's new Merchant Server software. Microsoft said Tower Records (**http://www.towerrecords.com**) and Micro Warehouse (**http://www.microwarehouse.com**) will be among the first Internet merchants to sign up to use Merchant Server.

AT&T said it will process credit card purchases on its business customers' Web sites and guarantee that the transactions will be secure and reliable. AT&T also says it will indemnify any AT&T Universal card holders whose cards are used fraudulently to buy goods from merchants connected to its service.

IBM jumped in with a set of services called World Avenue and CommercePoint that are designed to make it easier to set up an electronic storefront and process credit card payments.

Although all of the players stress the security aspects of their products, most online shoppers aren't all that worried about someone pinching their credit card numbers. But they are frustrated by the Web's inability to match the colorful environment of a printed catalog.

At the J. Peterman Co. (**http://www.jpeterman.com**), said bandwidth is a bigger concern than security. "We've not had any feedback indicating that people feel unsafe about using our site," said Robert Bolson, assistant to the creative director. But displaying electronic versions of the rich watercolor graphics featured in Peterman catalogs "is still a fairly arduous task. We'd certainly like to see some improvement in that area.

"We don't have a great expectation yet for the Internet," Bolson said. "The current technology isn't there to make it a viable distribution vehicle for our catalog. But we wanted to get online and fool around a bit. The technology could change in a week or a month."

What does it take for an online merchant to be successful? Size certainly helps.

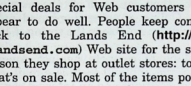
Companies have sold books online for years, but Amazon.com Inc. (**http://www.amazon.com**) says it has become the Net's most popular bookstore because it stocks more than a million titles. And the big music merchants like Tower Records and MCI's 1-800-MUSIC-NOW (**http://www.1800musicnow.mci**

Ric Manning writes about business technology, computers and consumer electronics for *The Courier-Journal* in Louisville, Ky. His weekly column called *Home Tech* is distributed to more than 80 newspapers by the Gannett News Service and it's available on the World Wide Web http://iglou.com/glzweb

Ric was the founding editor of *Plumb* and *Bulletin Board Systems*, two newsletters that covered the BBS arena in the early 1980s. His freelance work has appeared in several magazines including *PC/Computing*, *Mobile Office*, *PC Week* and *Home Office Computing*. Ric lives in Southern Indiana with his wife, two children and a champion Weimaraner. Write to Ric at **mailto:ricman@iglou.com**

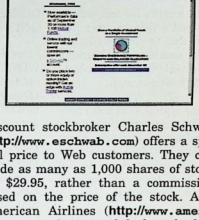
.com/) base their appeal on the depth and breadth of their catalogs.

One of the biggest Internet shopping sites is in the Internet Shopping Network (**http://www.internet.net**), an outfit owned by cable marketer Home Shopping Network. ISN says it stocks 35,000 computer products from 700 different manufacturers. It claims to get 30,000 visitors a day and sell more than $1 million in goods every month.



Special deals for Web customers also appear to do well. People keep coming back to the Lands End (**http://www.landsend.com**) Web site for the same reason they shop at outlet stores: to see what's on sale. Most of the items posted on Lands End's site are the same as the ones listed in the company's catalogs. But the electronic shoppers can check out overstock and discontinued items that aren't available in the paper catalog.

A company called Onsale (**http://www.onsale.com**) also uses the Web to give shoppers an experience they won't find in a catalog or at a mall. The site operates like a live auction selling computer equipment to the highest bidder. If Onsale has seven laser printers to sell, it posts the top seven bidders until the bidding closes. Bidders can check in any time to see where they stand.



Discount stockbroker Charles Schwab (**http://www.eschwab.com**) offers a special price to Web customers. They can trade as many as 1,000 shares of stock for $29.95, rather than a commission based on the price of the stock. And American Airlines (**http://www.americanair.com**) promoted the launch of its Web site by giving frequent-flier miles to customers who used it to book flights.

Even if online shopping won't be a big contributor to a company's revenue stream, J. Peterman's Bolson said it's important to get involved. "I really don't see how you could avoid going online at some point. Your average customer may not be Internet savvy, but their children and their grandchildren certainly will be." ◆

What can you buy online? Two consulting firms, Vos, Gruppo and Cappel Inc. and SIMBA Information Inc., say that stuff for sale on the Web breaks down this way:

21 %	books and music
17 %	computers
9 %	financial services
7 %	gifts
7 %	clothing
5 %	audio and video equipment
5 %	automotive items
5%	food

BIG BOARD BRIEFS by Wallace Wang

AMERICA ONLINE POSTS FIRST QUARTER LOSS

America Online, the world's largest online service, has reported a first quarter net loss of **$353.7 million** due to changes in its accounting practices. The company announced its write-off plans when it unveiled its long-anticipated flat-rate pricing plan of $19.95 a month.

Despite the loss, America Online claims that total revenues jumped 77 percent in the quarter, climbing to $349.9 million from $197.9 million a year ago. Even better, America Online added 400,000 new subscribers bringing their total subscriber count to 6.9 million worldwide with 35,000 of those subscribers coming from England, France and Germany.

For the future, America Online plans to leverage their 6.9 million membership base to entice additional advertisers. As their revenue from subscribers shrinks, America Online hopes that online advertising can make up for the difference and keep their stock prices soaring far above its actual value. No Surprise: CompuServe Subscriptions Slip

While America Online gambles that their flat-rate pricing plan will slow subscriber defections and attract new members, their closest rival, CompuServe, continues struggling in the wake of the Internet's surging popularity. CompuServe announced that their worldwide subscriber base fell to 3,312,000 from 3,313,000. European subscribers grew by 56,000 to 1,120,000, while North American users declined by 57,000 to 2,192,000. International subscribers are largely concentrated in Europe. CompuServe's Japanese licensee, Nifty-Serve, had 2,029,000 subscribers, up from 1,864,000 at the end of the second quarter.

Yet despite subscriber defections, CompuServe has not announced any plans to offer a flat-rate pricing plan of their own. They do offer an Internet-only service, dubbed Sprynet, which grew to 218,000 from 163,000. Rather than compete with America Online on equal terms, CompuServe plans to focus towards the business, professional, and European market.

"We will stop undifferentiated marketing to mass consumers,' said CompuServe president and CEO, Bob Massey. "We intend to focus our resources in those sectors where we can profitably expand our business."

In other words, CompuServe can't compete against America Online and can only hope to stay alive by going after the lucrative business and overseas market. Then again, given the choice between CompuServe's hourly rates or America Online's flat-rates, does anyone wonder what the general public will choose?

Wallace Wang is the author of ***CompuServe For Dummies, Procomm Plus for Dummies*** and ***Visual Basic for Dummies*** (all published by IDG Books) as well as ***Surfing The Microsoft Network***, published by Prentice-Hall). He also does stand-up comedy in the San Diego area, and has appeared on A&E's "Evening at the Improv" TV comedy club. He can be reached via e-mail at:**70334.3672 @compuserve.com** or **bothekat@aol.com** or **bo_the_cat@msn.com**

DISNEY READIES LAUNCH OF ONLINE SERVICE

After CompuServe dumped their comically repulsive WOW! online service, does anyone think a proprietary online service can survive any more? Apparently Disney still thinks they can pull off the magic by launching Disney Online, a subscriber-based online service, which should be available in the spring of 1997.

Disney Online plans to compete against America Online or CompuServe and will include e-mail, chat rooms, bulletin board listings and an Internet connection. Pricing plans would start at $5.00 and run up to $20.00 per month.

Then again, rather than start an online service from scratch, rumors abound that Disney might just buy out America Online instead. If Disney waits a little bit longer, they could buy out CompuServe after CompuServe's "strategy of the day" sours and CompuServe finds themselves worth only a fraction of their original stock price.

THE SCRAMBLE FOR SEARCH ENGINES

Given the Internet's free-wheeling nature, it's no wonder that online service members find the Internet a bit too chaotic for their tastes. So to help these poor lost souls find their way around, the big three online services have all announced deals with the major search engines.

Prodigy and CompuServe have chosen Lycos (**http://www.lycos.com**) as their search engine of choice. America Online has thrown their support behind the Excite search engine and plan to combine the Excite (**http://www.excite.com**) search engine with their own WebCrawler (**http://www.webcrawler.com**) search engine.

Given the rapid pace of alliances between search engines and online services, it's only a matter of time before the other search engines forge deals with others lest they find themselves run over by their competitors on the mythical information superhighway.

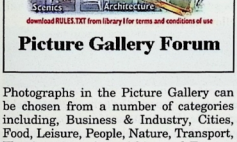
MORE PEOPLE ONLINE

According to a new market study by Jupiter Communications, the number of online households worldwide will rise from 23.4 million in 1996 to 66.6 million in 2000. "The global market for online services is in a position to grow tremendously over the next five years," states Kurt Abrahamson, Jupiter Communications' managing director. "This is due largely to the improvements we are seeing in telecommunications infrastructure and the growth of PC availability worldwide, plus the amazing consumer demand for online."

While the United States. will continue to lead in online households with 36 million in the year 2000, its share of the total world market will drop from 62.8 percent in 1996 to 54.1 percent in 2000. Japan, Germany, and the United Kingdom will make up the bulk of the remaining growth, leaving developing countries in Africa still struggling to keep from falling further behind the rest of the world.

FREE PICTURES ON COMPUSERVE

Rather than dish out a hundred bucks to buy a CD stocked with photographic images, visit CompuServe's Interactive new forum, the CompuServe Picture Gallery (**GO PICTURE**). This forum plans to make thousands of high-resolution, royalty-free images available for desktop publishing, Web page designing or corporate presentations. All pictures are available as low-resolution thumbnails for browsing and high-resolution, 24-bit, razor-sharp images to download and use completely royalty-free.



Picture Gallery Forum

Photographs in the Picture Gallery can be chosen from a number of categories including, Business & Industry, Cities, Food, Leisure, People, Nature, Transport, The Americas, Asia, Africa and Europe, as well as Backgrounds. All images are scanned to 24-bit color at 2,100 dpi to stringent quality control standards.

For those poor souls who lack a CompuServe account, you can at least learn more about the CompuServe Picture Gallery by visiting the Web site at **http://www.picture-gallery.com**. By offering special incentives like the Picture Gallery, CompuServe may actually have a chance of retaining their members and keep them from defecting to America Online or flat-fee Internet accounts.

MSNBC LOSES MILLIONS

While the Microsoft juggernaut might seem invincible in the software and operating system markets, they're far from dominant in the online service market. After teaming up their Microsoft Network (MSN) with NBC to create MSNBC, Microsoft has announced that their online and cable joint venture with NBC has already lost **$400** million since its inception.

In case you haven't checked out MSNBC (**http://www.msnbc.com**), it's a 24-hour news channel supplemented by an online news operation on the World Wide Web. Microsoft paid $220 million to NBC for a 50 percent interest in the venture. Microsoft hopes the venture will break even sometime within the next five years since sales of Windows 95 and Microsoft Office suites can't keep funding it indefinitely.

IMPENDING DOOM FOR AMERICA ONLINE AND COMPUSERVE?

After unveiling their $19.95 flat-rate pricing plan for unlimited access to the Internet and America Online, problems might be brewing. The elimination of hourly connect-time charges may entice members to stay connected longer than before, which translates into even more busy signals while trying to connect through America Online's own national phone network. To solve this problem, America Online has frantically installed more modems and additional phone lines, so try a different access number in your area the next time you get a busy signal. (Keyword: **Access**)

For another approach, get rid of America Online's $19.95 pricing plan and choose their less expensive $9.95 pricing plan instead. With this plan, you have to use a separate Internet connection (using your favorite flat-rate Internet service provider such as SpryNet or EarthLink) and then connect to America Online for as long as you want.

After getting burned in the online consumer market with their horribly inefficient WOW! online service, CompuServe is taking a "wait-and-see" attitude to see how well America Online holds up under the strain of several million members accesing the service for an unlimited amount of time every day.

CompuServe reportedly shut down WOW! after discovering that members spent so much time accessing WOW! that it overloaded CompuServe's computers and made WOW! unprofitable. If America Online runs into the same problem, expect even more frequent busy signals, disconnections, and subscriber defections than ever before.

"We do not believe that sub-$20, flat-rate pricing in the consumer space is profitable for anyone," said Steve Conway, CompuServe's vice president of corporate communications. "We are absolutely convinced that that is an unprofitable proposition for anyone and we're not going to do that."

Conway said that while CompuServe continues to be successful in Europe and Asia, where membership rose to 1.12 million during the quarter, it was losing ground in the United States. North American subscriptions fell 2.5 percent from the first quarter to 2.19 million.

AMERICA ONLINE AND COMPUSERVE TARGET THE BUSINESS MARKET

With revenue from individual subscribers on the decline, both America Online and CompuServe are looking to branch out into the more lucrative corporate business market. America Online has teamed up with Artisoft to co-develope a World Wide Web site hosting service targeted at small businesses, dubbed FirstWeb. FirstWeb provides a 20M-byte site (640 pages at 30K each) along with 600K worth of bandwidth per month and ongoing FTP access. The companies will offer free technical support and customer service 18 hours a day, seven days a week via AOL's PrimeHost online commerce Web hosting service. Round-the-clock site monitoring is also available at no charge, officials said. Pricing is **$49** per month plus a one-time setup charge of **$49**.

The service is designed to work with Artisoft's i.Share 2.0 Internet and corporate intranet access software, which enables users of Microsoft, Novell or Artisoft's LANtastic networks to share Internet resources on a single, simultaneous connection. The software allows up to 32 users on a network to share one Internet access provider address simultaneously, Artisoft officials said. Pricing will be **$249**.

In a similar vein, CompuServe announced an Internet access program for building Web communities for corporate customers, dubbed The Private Label Community (PLC) program. This program delivers customized content and services through CompuServe's network backbone and will let organizations "concentrate on their business without risking a large investment in new, emerging technologies," CompuServe officials said.

The service will offer E-mail, searching capabilities, browsers, plug-ins, customizable news content and newsgroups, and 24-hour support. CompuServe has already designed a community for Hewlett-Packard called HPNet. In September, the company delivered its first PLC for NEC Computer Systems. Called WebWay, it ships on NEC's line of Ready multimedia PCs. ◆

PUBLISHING ON THE WEB

by Michael Erwin

PART 26 - BUILDING AN ON-LINE ORDERING SYSTEM

This month I am going to continue to lay the ground work for building a fairly complex on-line ordering system. If you remember, last month I introduced you to a couple of packages that allow you to handle some type of database connectivity, and showed you how to capture statistics on which specific browser program was used to access your web pages.

This month you are going to learn about **Client Pull** and **Server Push**. Client pull is a method by which a client's web browser can request, or pull, information from a web server. A Server Push, as you can assume, is a web server's way of sending an item to a web browser, whether they want it or not.

Client pulls are the easiest of the two methods to understand, and the one we are going to use later on. So we will be spending some time on them first. Many of you may have encountered client pulls, but may not have realized the use of it. Before we get in too deep, I need to make sure you understand MIME types and HTTP (Hypertext Transport Protocol) headers. MIME stands for Multipurpose Internet Mail Extensions, and was originally used to help with handling various document types that were being sent across the net

I have stated before that when a browser requests an HTML document, the server not only sends the requested document, but it first sends something called an HTTP header. This is additional information the browser uses to understand what type of file it is going to receive. Think MIME types here. Remember that goofy little file that tells the server what the extension means, and on the browser side, it tells the browser which application to use to view or use with the incoming file. This is how .WAV files and RealAudio files work.

For the sake of explanation, lets examine Listing 1. This output was generated by the web server and was sent to the browser when the browser requested "index.html" from the server.

LISTING 1

```
HTTP/1.1 200 OK
Date: Monday, 30-December-96 18:39:23 GMT
Server: APACHE/1.3
MIME-version: 1.0
Content-type: text/html
Content-length: 1352

<HTML>
<HEAD><TITLE>Welcome Boardwatch
      Magazine</TITLE></HEAD>
<BODY>
etc.....
```

In this HTTP header, the first line tells the browser the communication protocol and the status code. 200 means success, the server found the requested document. Then it tells the browser the date and time it was sent, what the server and version number are, the version of MIME used, what the content is, how long the **"text/html"** content is in bytes, and a simple blank line that contains a single **ENTER** or **CR**.

The browser uses this information for itself, and does not normally display it to you.

The text in Listing 1 is sometimes referred to as a complete header. Hmmm..if we can have complete headers, that means we can probably have partial headers right? Right.

When we are writing CGI code, we can provide just the "Content-type:" or "Content-length" part of the header and the web server will generate the rest of the header for us. However, we can also put additional information into the header. Like redirection to other pages or sites and other options..

Look at the following partial header:

```
Content-type: text/html
Pragma: no-cache
etc...
```

Most of you already know that browsers cache retrieved documents, but that can lead to problems when dealing with CGI. In the above example, we are telling the browser not to cache the **"text/html"** file. By including that directive in the header, you can also achieve a more realistic page hit count.

We could also use the following partial header lines to cause the browser to reload the document when the specific document expiration time passes.

```
Content-type: text/html
Expires: Monday, 06-Jan-97 08:00:00 GMT
```

Look at the following partial header lines:

```
Content-type: text/html
Location: /bw/mainmenu.html
```

This header contains a redirection. When the browser receives this header, the browser then requests from the same server a different HTML document, called **"mainmenu.html"**, which is located in the **"/bw"** directory. This is a client pull. The browser pulls or requests a different document.

Michael lives in Huntington, West Virginia, with his wife Jacqueline and Paxi Baby (Jackie's Shar-Pei dog). He has designed, built and administered network systems for over 16 years. Mike has organized and documented his 600-megabyte bag of tricks, tools and voodoo on a CD-ROM entitled, *"The WebMaster's Resource."* It is available for US$24.95, plus US$2.00 shipping in the United States or US$5.00 elsewhere; send check or money order to 320 36th Street, Huntington WV 25702-1632. Please allow 4-6 weeks for delivery. For more information mailto: mikee@eve.net

Let's say we have a WebCam or some other time based information on a page, and we want the browser to request the new updated page every 15 seconds or so. Well look at these partial header lines:

```
Content-type: text/html
Refresh: 15; URL=http://www.boardwatch.com/webcam/web.html
```

This HTTP header causes the client's browser to "pull" the HTML document **"web.html"** from our server every 15 seconds. The URL declaration part is actually optional here, but we will see more on that in a second. So this is pretty slick, isn't it?. If you are starting to see these headers as something you can possibly use, then great!

So far we have seen some of what the web server can send, causing some effect on the browser. However, what if we are a cautious ISP and are not going to allow anyone to be able to directly control the web server. No problem, the HTML author can still control the client's browser with the use of a **<META>** tag. "Awwooogaahh, awwooogaahhh, New Tag Alert!"

The **<META>** tag gives the web author some cool control. For example, look at Listing 2 for a few seconds.

LISTING 2

```
<HTML>
<HEAD>
<META HTTP-EQUIV="Refresh" CONTENT="15">
<TITLE>Office WebCam</TITLE></HEAD>
<BODY>
etc.....
```

In Listing 2, we have the beginning of a HTML document. It includes a **<META>** tag on the third line. Looks kind of familiar doesn't it? In effect it is doing the same thing as:

```
Content-type: text/html
Refresh: 15
```

We are declaring the name of the header attribute by the use of **HTTP-EQUIV="Refresh"**, and we are assigning the value of 15 by **CONTENT="15"**. Notice, however, that we did not give it a URL this time. Why? Well, since the browser already knows where this document came from, and the document filename, we don't have to give it the URL. So, the browser, or client, pulls this HTML document from the web server every 15 seconds. Making it seem like we are doing some fancy CGI programming, in reality we are simply using the tools we have been given.

Here is something from the trenches that I love this tag for. Look at the following HTML listing.

LISTING 3

```
<HTML>
<HEAD>
<META HTTP-EQUIV="Refresh" CONTENT="5;URL=http://www
      .eve.net/~mikee">
<TITLE>Michael Erwin's Old Site</TITLE></HEAD>
<BODY>
<CENTER><H1>This site has moved.</H1></CENTER>
<P><HR><P>
<H2>The new URL is <A
HREF="http://www.eve.net/~mikee">www.eve.net/~mikee
      </A>.<P>
If your browser supports META tags, you will be automatically
      taken there in 5 seconds.<P>
</H2>
</BODY></HTML>
```

Here in Listing 3, we are displaying a simple HTML page that is acting as a forwarding agent. In this case we are even specifying the URL the client's browser should request the documents from in 5 seconds.

By the way, notice that I have placed the **<META>** tag between the **<HEAD>** and **</HEAD>** of the HTML document. Matter of fact, when I use the **<META>** tag, I always put it right behind the opening **<HEAD>** tag. Currently only Netscape Navigator 1.1+ and MS Internet Explorer 2.0+ supports the meta tag. In the case that the client is part of 6% of those on the net not using either of those browsers, they can still select **"www.eve.net/~mikee"** to get to the new site.

If you haven't figured it out by now, you can place most any header elements within the **<META>** tag. For example:

```
<META HTTP-EQUIV="Pragma" CONTENT="no-cache">
```

This tells the browser not to cache this document. Again, this is something useful for those of you wanting a more accurate page hit count.

That pretty much covers client pulls, as for server pushes. Well that is another story, but I will tell you this much about them. They work somewhat like client pulls, but the web server actually sends information to the browser. For example, in the dark ages of HTML, we could use server pushes to do graphic animation. Talk about a pain in the rear.

That pretty much covers this month's groundwork in which we are still just working on the foundation for the upcoming months, when you will be building a complete web based, online purchasing system. Till next time....◆

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FOR MORE INFORMATION:

MIME - RFCs 822 & 1521

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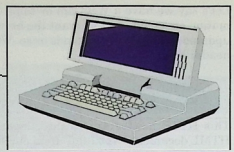
INTERNET ROAMING by Jack Rickard



CAN I-PASS ALLIANCE GET IT RIGHT?

The cellular telephone became infinitely more useful when the cellular industry developed an exchange and settlement program allowing cellular subscribers to "roam" from one provider's territory to another. Initially, subscribers had to enter a special number, typically *18, to activate this in other areas. Today, in most of the areas you don't even need to do that. Roaming remains ridiculously expensive, but it works very well.

The concept of Internet roaming has been much discussed for nearly a year. It is estimated that 5-8% of Internet subscribers do some traveling. We can see just in the various Internet Service Provider mailing lists a more or less constant trade in ISPs wanting to get a temporary account from one of their peers while they are in Boston on business, or while vacationing in Florida.

At least four companies we know of have launched some version of Internet roaming, but almost without fail it has involved some version of "first you get Oracle, then you buy our $2,500 software program, and then your users run our special software." That's part of the initial pitch. It gets worse from there as you get into the actual gory details of how they cut checks six months later.

A company titled I-Pass Alliance, Inc. may have put together the first program that might work to establish Internet Roaming and allow Internet subscribers to logon from most locations worldwide.

FROM THE USERS' PERSPECTIVE

One of the keys is ease of use for the end user. If they have to run special software, or otherwise reconfigure the world, they probably won't - even if they do have a bit of a need for remote access to the Internet while traveling. The I-Pass plan lets them change two elements in their configuration and make the connection. First, they enter a different dial-up phone number, usually from a list on their own providers' web page.

Second, they change modify their logon name to include the domain of the home system. If I normally logon here as jrickard with password foryx, for example, I would logon to any other participating ISP's local access number as jrickard@boardwatch.com with password oryx. The I-PASS software, run on the partipating ISP's authentication server, would detect the @, and query the I-PASS server for authentication from boardwatch.com. The I-PASS server is located at the DEC Digital Exchange in Palo Alto. It would in turn query the boardwatch.com end, and pass authentication back to the ISP where I'm dialing. We're told this authentication process requires about ten seconds currently - probably not an unbearable delay.

Once in, my e-mail for example is already configured to point at the mail.boardwatch.com POP3 server etc. So it is really quite like dialing an additional POP for my regular ISP.

In all cases, there are additional metered hourly charges for the service - typically **$1.50** per hour but as high as **$10** per hour from some foreign countries. These would appear on my regular monthly billing from my own provider.

FROM THE ISP PERSPECTIVE

The I-Pass program is probably the least disruptive program we've seen from the ISP's perspective. Basically, you complete a membership application and download the free software from their web site at **http://www.ipass.com**. The cross-authorization and accounting software is available for BSDI/OS Version 2.1, Sun Solaris 2.5, and Digital Unix OSF/1 Version 3.2. It supports the following NAS authentication protocols:

Standard/Livingston RADIUS 1.16
Merit RADIUS 2.4.21
Ascend RADIUS 1.16
Cisco TACACS+ 3.0.4
Xylogics ACP/ERPCD 10.1

You also negotiate a buy/sell agreement with the I-Pass Alliance. Basically, you agree to sell access to your service to other roamers at one price, and buy access from others at another.

Revenues are generated by applying a markup to the cost of access from other ISPs when the ISPs' bill their customers that roam. Further, the ISP gets revenues from other ISP's customers that use their dial-up facilities to roam. How much can these revenues be? According to I-Pass Alliance CEO Chris Moore, it is a function of the size of the ISP of course. But they claim an ISP can expect to move their gross revenues approximately 4%. Somehow, this very realistic sounding financial estimate strikes us as much more believable than the "all the riches of Rome" presentation we've previously seen from other roaming organizational efforts.

Of course, a significant advantage beyond marginally higher revenues is the ability to retain subscribers who can now roam the planet and have it all appear on their own local provider's billing.

AND WHAT OF I-PASS?

I-Pass, of course, takes a cut out of the middle of ALL transactions. According to Chris Moore, this is proprietary information, and somewhat variable. But he did range their cut in the 10% to 15% arena. We rather like the concept. The ISPs and customers are not faced with any large signon fees, and if I-Pass Alliance can garner a significant participation by Internet Service Providers, they could very likely be one of the financial success stories of the Internet in 1997. They are running an authentication server in a secure facility in Palo Alto, and they issue checks and invoices and take 15% of the cut.

All aspects of the online world have had a certain threshold nature that is just discouraging until you get on the other side of it. The question as to the ultimate value of the service is whether a sufficient core group of ISPs will participate. I-Pass is pretty persuasive in this regard - they claim UUNET and BBN Planet have already joined the group - advancing a huge credibility token in this respect. For most ISPs, the ability to use UUNET's worldwide dial-up POP footprint for their customers to roam is actually quite enticing by itself. Some 20 ISPs are currently participating and another 40 have the software and have generally agreed to install it and participate. The company is claiming access from POPS in 159 countries and 750 cities now - probably largely a reflection of the UUNET/BBN participation. But they do have agreements with some key players in Korea, Hong Kong, and Australia.

The number one difficulty I-Pass is encountering is inertia. Most ISPs are terribly busy right now. To get one to stop what they are doing, download this program, install it and start offering the service, all to move gross revenues 4%, is a little difficult. Most have reacted favorably but vaguely. The software installation is in theory 4 hours, and according to Moore, they have signed a few ISPs up and had them running in four or five days.

The I-Pass Alliance, Inc. organization currently consists of 20 employees. They have received "significant" funding from Accel Partners, Crosspoint Ventures, and Asia Pacific Ventures. They grew out of two companies, Seach Change Corporation of Canada and Club Internet Limited of Hong Kong. Both found themselves working on the same cross-authentication problem and merged in April of 1996. They signed up their first ISP in May, and in June began testing the service. They officially launched the service in October, and received their venture funding in November. And thus far, they look like the best bet in the race to deploy Internet roaming on a global basis. I-Pass Alliance, Inc., 650 Castro Street, Suite 280, Mountain View, CA 94041; **(415)968-2200** voice; **(415)968-2266** fax; **http://www.ipass.com** ◆

FCC ISSUES NOTICE OF INQUIRY ON ACCESS CHARGES FOR ISPS

TENTATIVELY CONCLUDES TO MAINTAIN STATUS QUO

By Neal J. Friedman

Comments Due: February 21, 1997
Reply Comments Due: March 24, 1997

The FCC has issued a Notice of Inquiry (NOI) seeking public comment on the question of whether Internet service providers (ISPs) should be required to pay access charges in the same manner that long distance telephone companies must pay for access to the local switch. The Commission has reached a tentative conclusion that ISPs should not pay access charges for now, but a fierce lobbying campaign is expected over the entire access charge issue.

The NOI is part of a larger proceeding to reform access charges, which is expected to touch off a major lobbying battle between local and long distance telephone companies. The Telecommunications Act of 1996 required the Commission to open the local and long distance market to competition by "removing economic, regulatory and operational impediments that protected monopolies in the local exchange market."

For most of the 20th century, consumers purchased local and long distance service from the same company. AT&T, which provided most or all of the long distance service, compensated its local operating subsidiaries for originating and terminating long distance calls. By 1979, when MCI and others began to enter the long distance market in competition with AT&T, the Commission ordered a system of payments to the local Bell companies for originating and terminating long distance calls. In 1983, as the AT&T divestiture was about to take effect, the FCC ordered a system of access charges to compensate local exchange carriers (LECs) including the former AT&T subsidiaries and independents.

There is little disagreement, the Commission states, on the need for access reform. But, with **$23 billion** at stake, just how the reform is to be accomplished, will be the subject of intense lobbying and possibly litigation. Incumbent LECs favor a marketplace approach that would allow rates to fall on their own as competition arrives. Long distance carriers want the Commission to set the rules for specific reductions. The FCC said its goal is to eliminate price regulation. Access charges currently range from three cents to four cents per minute charged at the originating and terminating end of the call. Long distance companies claim the actual cost to LECs is closer to a penny per minute. The local phone companies claim they need access charge revenue to fund universal service, which keeps local rates low.

ISPs are considered to be "enhanced service providers" under the FCC's 1980 Computer II decision and, therefore, exempt from access charges. The enormous growth in the Internet in recent years, the FCC points out, has been fueled, in part, by the fact that ISPs have purchased services by paying business line rates and the appropriate subscriber line charge, which is substantially lower than the equivalent interstate access charges. The Commission states that the Internet and other information services "would not have developed to the extent they have today - and indeed may not have developed commercially at all" if ISPs had been required to pay access charges.

Representatives of four of the Bell Operating Companies (BOCs) have written letters to the Commission contending that the present rate structure contributes to congestion on the incumbent LEC networks. They argue that Internet users typically are connected for longer periods than voice users and the flat monthly rates ISPs pay do not support the additional cost of network upgrades to support such traffic.

ISPs have argued in response that the rates they pay, combined with additional revenue to incumbent LECs from second lines for Internet usage, more than cover the additional cost ISPs impose on the network. ISPs further contend that the imposition of access charges would stifle growth and innovation of information services.

In its tentative conclusion, the Commission decided that ISPs should not be liable for interstate access charges "as currently constituted." Elsewhere in the NOI, the Commission found that the present system includes "non-cost-based rates and inefficient rate structures." The NOI continued: "We see no reason to extend this regime to an additional class of users, especially given the potentially detrimental effects on the growth of the still-evolving information services industry." Thus, the Commission left the door open to changing its policy once it resolved the larger access charge issue for all classes of users.

The FCC is seeking comment on its conclusion that: "The mere fact that providers of information services use incumbent LEC networks to receive calls from their customers does not mean that such providers should be subject to an interstate regulatory system designed for circuit-switched interexchange voice telephony."

The Commission conceded that its rules, designed for traditional circuit-switched voice networks, may hinder the development of emerging packet-switched networks. It asked for more information to allow it to make informed decisions that will encourage further development of the high-bandwidth data services of the future. Specifically, the FCC asks for comment in the following areas:

How its rules can most effectively create incentives for the deployment of services and facilities to allow more efficient transport of data traffic to and from end users?

How the congestion concerns of incumbent LECs may be addressed through new hardware to route traffic around incumbent LEC switches or through the use of new technologies such as asymetrical digital subscriber line (ADSL) or wireless solutions?

What state or federal regulatory barriers might prevent alternate network access arrangements for ISPs?

Should the FCC consider using its forbearance or preemption authority to avoid results that would hamper deployment of new technologies?

The effect of the current system on network usage, incumbent LEC cost-recovery and development of the information services marketplace.

The character of information service usage and its effects on the network.

How to address jurisdictional, metering and billing questions given the difficulty of applying jurisdictional divisions or time-sensitive rates to packet-switched networks such as the Internet?

How new services such as Internet telephony and real-time streaming audio and video services should be addressed?

The Commission stressed that it does not intend for the NOI to any way supersede the efforts of the Network Reliability and Interoperability Council, which is conducting a separate study of the effects of the Internet and online services on the public switched telephone network.

Despite the FCC's tentative conclusion in support of the status quo, it is important the ISPs be heard in this proceeding. The full text of the NOI is available for downloading in Microsoft Word and WordPerfect formats from **http://www.commlaw.com**. We would be pleased to assist any interested parties in preparing and filing comments with the Commission. Contact Neil Friedman at **mailto:njf@commlaw.com** ◆

PUTTING THE NET TO WORK

by Durant Imboden

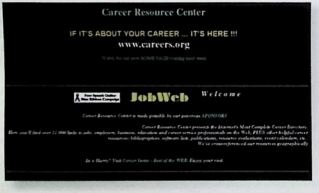
PUTTING THE NET TO WORK: EMPLOYMENT RESOURCES

Nearly 11 years ago, I said good-bye to the corporate world and became a full-time freelance writer. The fringe benefits were great: no fixed hours, naps instead of meetings, being able to watch ***The Price Is Right*** without having the flu, and the sense of independence that comes with paying one's own medical-insurance premiums, Social Security taxes, office expenses, and Christmas bonuses.

Durant Imboden is a freelance writer whose credentials include published novels and nonfiction, fiction editing and staff writing for *Playboy*, travel writing for corporate clients, and representing authors at a New York literary agency. He currently manages the Writing Forum on The Microsoft Network and co-authors the "Flame Wars" column on Delphi, where he is an editorial consultant. Durant maintains a Web site for writers at Mallto:**imboden@writing.org**

Recently, however, one of my children looked at me and asked, "Daddy, what does 'unemployable' mean?" This question led me to wonder how I'd find a job if I felt the urge to become a normal citizen again — and whether the Internet could be used to search for work without leaving home.

It didn't take long to discover some impressive figures about jobs on the Net. The ***Wall Street Journal*** claims that postings by the major online job banks now total "about a half-million jobs on any given day, up from only about 15,000 in 1994." An AltaVista Web search on the word "employment" yields 600,000 hits — more than "sex" (300,000), "Jesus" (100,000), or "Bill Gates" (70,000).



A lively online recruitment industry has sprung up to serve the needs of employers and jobhunters. The ***Career Resource Center*** at **http://www.careers.org** lists "over 11,000 links to jobs, employers, business, education and career service professionals on the Web." And the Internet Business Network surveyed more than 500 online recruitment sites before posting a "Top 25 list" on its ***First Steps in the Hunt*** page at **http://www.interbiznet.com/top25.html**.

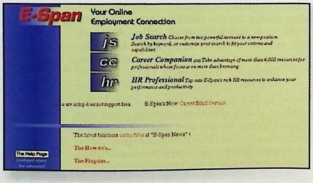
IBN's "First Steps" page may not be a one-stop shopping guide to Internet employment opportunities, but it comes close. Its resources include built-in querying tools for some of the Web's leading job search engines — starting with ***America's Job Bank***, **http://www.ajb.dni.us**.

This site is operated by the U.S. Department of Labor in cooperation with state employment-service agencies around the country. Job listings are mostly in the private sector and "represent all types of work, from professional and technical to blue collar, from management to clerical and sales." Prospective employees can search by occupation code, military code, keyword, or job category.

To test the search engine, I selected U.S. Navy code 3520 ("arranger, officer") and hit the "View jobs now" button. America's Job Bank listed a full-time orchestra conductor's position in Fredonia, N.Y., and the accompanying description outlined educational requirements and job duties.

Encouraged by my success, I next tried a keyword search on "nude," "topless," and "exotic." To my amazement, I found a listing for an "Exotic Dancer/Billia" in Rapid City, S.D. (The job description said that a topless billiard player was also needed—hence the truncated reference to "billia," one assumes.)

Being neither exotic nor a dancer, I turned to another resource: ***E-Span***, **http://www.espan.com**, an Indianapolis-based company that pioneered Internet recruiting back in the pre-Web days of 1991. E-Span doesn't have ads for exotic dancers or billiard players. However, it boasts some 20,000 job listings in accounting, insurance, engineering, medical, pharmaceutical, insurance, marketing, sales, and other white-collar occupations.



E-Span offers two search types, "keyword search" and "customized searches."

The keyword search form has three fields: search word, company, and state. A search on the word "beer" yielded 14 jobs — all located in Milwaukee, but with none located in breweries.

E-Span's "customized searches" engine is more sophisticated, since it lets the candidate supplement the keywords with his or her education level, years of experience, and job level. I again searched on the word "beer," this time specifying a BA/BS degree, 2-5 years of experience, and a non-management position. The customized search yielded two jobs: both involving computers, and both located in (you guessed it) Milwaukee.

Although its search engine may not be perfect, E-Span does have a lot to offer the online job applicant. Candidates can register to get weekly listings of suitable job openings by e-mail (either plain text or HTML), and registered members can store their resumes and search profiles in an E-Span database for future use. Finally, E-Span offers a "Career Companion" with 4,000 links to personality-assessment tools, business indexes, career-fair calendars, resources for disabled jobseekers, newspapers, online schools, travel and relocation information, and other sites of potential interest to employment candidates.

CareerPath.com takes a slightly different approach at **http://www.careerpath.com**. Unlike E-Span, CareerPath doesn't have any listings of its own. Instead, it aggregates more than 250,000 classified job ads each month from 25 metropolitan newspapers like the ***Atlanta Journal-Constitution***, the ***Chicago Tribune***, the ***New York Times***, and the ***Washington Post***. Click on the "Search" link, and you're told to pick at least one newspaper. I selected all the newspapers, chose the "ZZ OTHER" category, and entered the keyword "sex." The search yielded three possible jobs, all in school districts. The only sex tie-in was a lack of gender discrimination, a fact that demonstrated the equal lack of discrimination in full-text search engines.

CareerMosaic, **http://www.careermosaic.com**, has a hodgepodge of a home page that offers everything from a large "J.O.B.S. Database" to profiles of "world-class employers." One of its more intriguing features is a searchable index of 60,000 postings daily from USENET "**.jobs.offered**" newsgroups. I entered the keyword "sex" and came up with 13 hits that ranged from an Indian software engineer's resume to a message headed "Females Wanted for Spanking Videos $300/day...or a part of sales."

International jobseekers should try the CareerMosaic partner sites in Asia, Australia, Canada, Japan, the UK, and Hong Kong. The positions listed tend to be in the computer and technology sector: e.g., an international product manager for Symantec in Hong Kong and sales jobs with Intel, Novell, and Symantec in England.

Another domestic site worth investigating is ***Help Wanted-USA***, which is operated by Gonyea & Associates, Inc. Although the service has tie-ins with America Online's Career Center and various BBSes around the country, job-hunters can access its 15,000 listings through Gonyea's Internet Career Connection at **http://iccweb.com/employ.html**. But be prepared for a surprise or two from the Help Wanted-USA search engine. When I searched on the word "tailor," the hit list included several dozen programming and engineering jobs. Finding a position for a needle-and-thread expert was like searching for a needle in a haystack.

Online Career Center, **http://www.occ.com**, calls itself "the Internet's first and most frequently accessed career center," although its FAQ doesn't provide any numbers to back up this claim. Instead, the company solicits business from Net-challenged corporate recruiters by implying that it has a special relationship with consumer online services:

"OCC consolidates the over twenty (30) million subscribers of major online networks into a national audience of potential employment candidates. Subscribers to commercial online networks including Internet, Prodigy, CompuServe, GEnie, America Online, The WELL, Portal, BIX, Delphi and others can reach the Online Career Center via telnet, Gopher, and World Wide Web (WWW)."

(Note: The inconsistency between "twenty" and "30" is OCC's error, not mine.)

Despite this questionable hype, OCC does have a database that allows Boolean searches for real jobs. A search on the string "sex or beer and exotic not billiards" turned up 87 listings that ranged from a junior metallurgist at Pinole Point Steel Co. to a facilities receiving clerk at Fujitsu Microelectronics. Candi-dates can also search for contract work or browse for franchise opportunities.

Another popular site is ***The Monster Board***, which listed 17,852 U.S. jobs and 794 "global opportunities" when I visited **www.monster.com**. A query on the previously mentioned "sex or beer and exotic not billiards" didn't find a single job opening, a result that increased my confidence in The Monster Board's search engine.

The Monster Board has some other nifty features. "Jobba-the-Hunt" is an agent that scans new job postings when the user is offline, turning up opportunities that match a custom job profile. The home page also has "job search shortcuts" to directories of entry-level positions, internships, human-resources postings, and openings at The Monster Board itself. My favorite was the "cool jobs" page, which focuses on career and

volunteer opportunities in the great outdoors—including jobs in National Parks, ski-related jobs, cruise and resort positions, and listings for camp counselors.

Readers who'd rather stay indoors, staring at screen phosphors, should open their browsers to ***TechCareers*** at **http://www.techweb.com/careers/careers.html**. TechCareers is a service of CMP Media, which publishes Information Week, Windows, NetGuide, and other computer magazines.

TechWeb claims to list more than 10,000 high-tech positions, using a search engine that's linked to E-Span's job postings. So why not just visit E-Span and eliminate the middleman? Mostly because TechWeb does cater to the C++ and Java set with feature columns, salary surveys, and links to classified ads in CMP publications.

TechWeb also has a "Useful Indices" page with some of the Web's handiest general resources for job hunters:

Job Search and Employment Opportunities: Best Bets from the Net, **http://asa.ugl.lib.umich.edu/chdocs/employment**. This bare-bones HTML page by two librarians at the University of Michigan provides direct access to "best bets" recruitment sites in education and academe, humanities and social sciences, science and technology, and business and government.

Yahoo! Career and Employment Planning, **http://www.yahoo.com/Business/Employment/Jobs**. It isn't pretty, and the collection of links is a bit eclectic, but—as always—Yahoo! is a good starting point for any Web expedition.

The Riley Guide, **http://www.jobtrak.com/jobguide**. Margaret Riley is an Internet recruitment consultant who writes for the Wall Street Journal's "Managing Your Career" section. Her "Employment Opportunities and Job Resources on the Internet" page is a conveniently organized guide to job-related Web resources of every stripe—from resume databases where you can post your curriculum vitae to job listings, research resources, and "how-to" sites.

Another handy all-in-one source is ***Nerd World Job Listings*** at **http://www.nerdworld.com/users/dstein/nw38.html**. Contrary to the title, many of the listings are links to other sites rather than actual job postings—but those links include some that aren't readily found anywhere else, such as the Experimental Particle Physics Job Rumor Page, the Pharmacists' Employment Listings Newsletter from Pharmacy Week, the U.S. Secret Service, and an Offshore Guides site for oilriggers and roughnecks.

Speaking of offshore, ***Ireland's Online Directory*** has a convenient list of Irish recruitment agencies and job-finding resources at **http://www.niceone.com/recruit.htm**. England's ***RecruitNet*** has searchable job listings from ***The Guardian*** at **http://recruitnet.guardian.co.uk**. Another British resource, ***The Monster Board UK***, **http://www.monster.co.uk**, offers a search engine and other resources comparable to those of its U.S. parent.

Antipodean jobseekers should visit ***Australian Job & Career Web Sites***, **http://www.ozemail.com.au/~goan/jobs.html**, which uses an upbeat musical intro to lift the spirits of the unemployed. JobNet is an equally handy site for the Down Under crowd, with a searchable database of contract and permanent employment opportunities for computer, technical, and management personnel.

Work in Malaysia, http://www.jobs.com.my, has dozens of job listings for programmers, engineers, chemists, bankers, and other skilled candidates in that nation. Unlike companies in the U.S., Malaysian employers—including subsidiaries of U.S. corporations—aren't shy about listing age requirements and asking candidates to supply photographs.

The University of California at Irvine has an excellent ***Teach Abroad*** page for aspiring teachers with bachelor's degrees. The site, at http://www.cie.uci.edu/~cie/iop/teaching.html, focuses on English instruction in Japan and other countries.

Finally, it never hurts to be familiar with **USENET news groups**—not just the obvious "`jobs.offered`" choices, but also newsgroups in your field. The noise level tends to be high, with spam outweighing job opportunities by an unhealthy margin, but real-life jobs do turn up with surprising frequency. What's more, an active member of a professional newsgroup may receive job feelers by e-mail as a result of networking online.

INTERNET RECRUITMENT: an employer's perspective

The Internet isn't just a mecca for jobseekers. It's also popular with employers, to judge by the number of recruiting firms and corporations that now advertise in newsgroups or on the Web. Still, employers need to consider the positives and negatives of online recruiting before abandoning traditional media for the Net.

Pros:

1) Advertising is cheap. An employer can post job openings on a newsgroup like `biz.jobs.offered`, `misc.jobs.contract`, or `comp.unix.admin` without spending a cent. Alternatively, services like E-Span and The Monster Board accept job postings at rates that few newspapers can match: e.g., $150 for a 60-day ad at http://www.monster.com, with long-term packages available for companies that recruit often.

2) Postings appear quickly. It can easily take a week or more to buy an ad in the Sunday paper, wait for it to be published, and get the responses—especially if it's a "blind ad" with a box address. In contrast, a Web or newsgroup posting can appear in minutes. Some sites will even provide a link to the advertiser's own recruitment page, making it easier for candidates to fill in an application online.

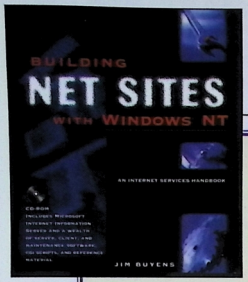
3) Applicants are Net-savvy. Web recruiting weeds out technophobes. This can be a valuable benefit to companies where employees are expected to use computers, e-mail, and intranet applications.

Cons:

1) The prospect pool is limited. Most job candidates don't have access to the Internet. Of those who do, many don't know they have the ability to search for jobs online.

2) The recruitment process ignores qualified candidates. If you're shopping for a dentist, you probably care more about drilling skills than Internet literacy. The same logic applies to recruiting, where a willingness to use the Web may be far less important than a candidate's other qualifications.◆

BOOK BYTES by L. Detweiler



Building Net Sites with Windows NT
An Internet Services Handbook
By Jim Buyens
1996, Addison-Wesley
609 pages, **$39.95**,
CD included
ISBN 0-201-47949-4

http://www.aw.com/devpress

A few columns ago we began predicting NT would be a killer platform for web sites. The exodus has begun and the bookshelves are beginning to reflect the trend. This new entry from the reliable Addison-Wesley publishers is a comprehensive and thorough entry into what is going to rapidly be a very crowded niche.

The author began an NT Tools Server Page that was listed in LAN Times and PC Week when the publisher discovered him. Buyens is a relative newcomer to the web arena but his systematic librarian-stockpiling instincts show in the book. Buyens has become acquainted with, and mastered, web technology in an astonishingly brief amount of time comparable to what some may spend merely frittering away web surfing! Clearly his personality is very well suited to writing a book. His only-recent "newbie" awareness clearly helped him to create a volume that is very useable and tackles all the critical issues that other books on the subject have inadvertently leave behind. "By early 1995, I'd decided that within a few years no one could be a credible computer networking professional unless he or she had intimate knowledge of the Web, its protocols, and its applications... I was wrong ... it happened in a few months."

Chapters: Internet applications and support services, Why use Windows NT?, Installing and Administering Windows NT, Installing and Configureing DHCP and WINS, Installing and Configuring Domain Name Service, Installing and Configuring FTP, Installing and Configuring Gopher, Installing and Configuring POP/SMTP Mail Service, Installing and Configuring a List Server, Installing and Configuring USENET News Service, Installing and Configuring HTTP, Advanced Web Services, Backup and Recovery, Security, System Management Principles, Supporting Your Users.

We were impressed with the depth of coverage in security areas. The book has copious screen snapshots and definitely emphasizes the technical, how-to angle over more abstract issues surrounding network and NT administration. The book's coverage is not overly web-focused, buyers should realize that if they want a volume that focuses on web servers for the NT, others are probably more appropriate. This book has many network issues with web server administration a sizeable, but not majority, slice of the book. Buyens looks at the installation process for the EMWAC HTTPS, Netscape Communication Server, O'Reilly WebSite, and Microsoft Internet Information Server. He does not include much direct feature or performance comparisons, emphasizing more how the servers differ in administration interfaces. We appreciated the sizeable sections on CGI and database interfacing.

The appendixes contain a good variety of company contact information. The CD Rom includes Microsoft's Internet Information Server, Eudora Lite, DNEWS, LISTSERV, Metainfo DNS, many EMWAC servers and toolkits, reporting an dmaintenance tools, CGI scripts, etc.

Using the Internet and the World Wide Web in your Job Search
The Complete Guide to Online Job Seeking and Career Information
By Fred E. Jandt and Mary B. Nemnich
1997, Jist Works, Inc.
308 Pages, **$16.95**, 3.5 disk included
ISBN #1-56370-292-4
http://www.jist.com/jist

The Jist publishers are to books on finding a job as O'Reilly is to computer books. They've carved out the niche and have many good titles on the subject. This is their entry into the computer angle and the authors have put together a sharp and snappy collection of basic job-search information. A chapter focuses on Preparing Your Electronic Resume, while the rest of the book generally explores online resources, as well as

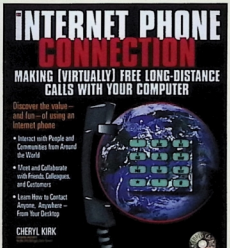
several chapters on Netiquette, the Internet Interview, and Advice for College Students and Employers.

This is the second edition of a book originally entitled Using the Internet in your Job Search. The web sections in this edition have been enlarged. This process of the book going through at least one revision has significantly added to its quality and coverage, because it's been influenced by feedback from "job seekers, career placement specialists, employers, and administrators of job and resume data banks."

At times the book gives a bit too many online resources without helping the reader separate the wheat from the chaff, particularly in the web section. We'd like to see more a general categorization of the different services that helped the reader understand their scope and purpose, and which ones to use in what situations. Readers will probably have to do a lot of web surfing on their own to find the services they like the most. Otherwise we find the book highly readable and valuable. The emphasis on every step of the process, not merely the "find a job posting" stage but other stages such as the resume creation and interviewing processes, nicely round out the coverage for the audience. Some neat, "applied"-flavor sections include "psychological aspects of the electronic job search," "success stories," and "horror stories."

The numerous screen shots are high-quality and relevant. The format of the book would be appealing to college students for example because of its Cliffs-Note like layout, with its short-paragraph abbreviated approach and frequent headings scattered throughout. To a degree, this is a book for anyone with a short attention span (if there really is such a thing).

The disk includes the IntelliMatch Resume Builder, which interfaces with a vast database that may result in companies contacting the applicant based on resume searches instead of vice-versa



The Internet Phone Connection Making Virtually Free Long-Distance Calls with your Computer
By Cheryl Kirk
1997, Osbourne McGrawHill
276 pages, **$29.99**, CD included
ISBN #0-07-882269-6

http://www.osborne.com

This book is another entry into the Internet Phone category, and we find it a good value. The technical level is probably less complex than the other recent book on the subject by Jeff Pulver. It has an introductory chapter on the principles of sound compression and analog vs. packed-switched sound, for example. The installation instructions for the software are only given in general across all products. The chapter on hardware tips has a nice FAQ of about 30 common questions or problems. A chapter on Gadgets, Gizmos, and Other Great Things for Internet Phones delves into various products such as headsets, microphones, keyboards, and videocameras. The final chapter looks at even more related software such as NetMeeting by Microsoft, other videophone and videoconferencing tools, and chat programs.

The chief part of the book is an extremely thorough review of about 20 different phone software products on the market, rated for Voice Quality, Ease of Use, and Overall Product Features, as well as a checklist of other items related to ease of installation, etc. The packages reviewed include Intel Internet Phone, FreeTel, Web.Max.Phone, TS Intercom, IBM Internet Connection Phone, Internet Call, IRIS Phone, WebPhone, Speek Freely, TeleVox, SoftFone, DigiPhone, CoolTalk, DigiPhone Mac (formerly e-Phone), ClearPhone, PGPfone, WebTalk, VocalTec's Internet Phone, Interphone, Internet Multimedia.

The CD Rom includes most of the major products reviewed: the IBM Internet Connection phone, Internet Phone from VocalTec, CU-SeeMe from WhitePine, WebPhone from Netspeak Corp., FreeTel from FreeTel Communications, Inc, Clearphone from Engineering Consulting, TeleVox from VoxWare, Inc, and IRIS Phone from IRIS Systems, Ltd.

Our recommendation is that if you want to focus on purely internet phone technology alone, go with Jeff Pulver's book, ***Internet Telephone Toolkit*** (Wiley). This book by Kirk is excellent for its survey of a larger scope of products and technologies. We liked the layout and organization of this book and found it to be highly appealing and browsable. The numerous photographs, figures and illustrations make it feel almost like a internet telephony catalog.

Some readers may find the author's very personable style more friendly, others not. She begins the book by including some anecdotes, bordering on nostalgic sentimentality, about how she got into the field by looking for a low-cost communications route to her parents. Two pages are replete with references to Mom and Dad with verbatim transcripts of email and original pictures. Elsewhere the book has many first-person accounts of reactions to the software.◆

http://www.ascend.com/isp

Ascend Communications With an installed base of 2.2 million ports, Ascend provides more ISPs with dial-in access servers than any other vendor. Ascend's scalable products let ISPs cost-effectively grow their POPs and offer subscribers Ascend's award-winning ISDN/frame relay Internet Access Devices. Ascend's products deliver end-to-end solutions for integrated firewall security, telecommuting, Intranets and VPNs.

http://www.mm.org

MatchMaker: While surfing the net, here is a place to stop by and meet some of the nicest people on line. MatchMaker is a national network growing everyday. Stop by, we would love to have your company.

http://www.ariel.com/b.html

Ariel: Ariel provides high-density modems for ISPs putting 24 v.34 modems in a single slot. Ariel also provides fast-train modems for transaction processing, plus has ADSL systems

http://www.gtek.com

GTEK is the leading manufacturer of High Speed Multiport Serial Boards. Our cards are used worldwide in Bulletin Boards and data acquisition systems. We have been in business for over 13 years providing quality products to our customers worldwide.

http://www.bsdi.com

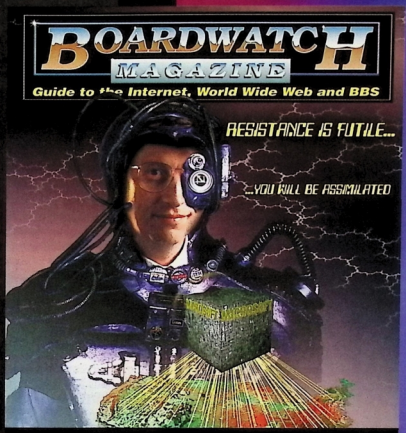
Berkeley Software Design: The most complete Internet server software includes Netscape FastTrack Web server, Apache Web server, News Server, mail server, FTP Server and more. Over 2,500 ISP's worldwide and Fortune 500 companies rely on BSDI for top Web and Internet/Intranet power and stability. No additional OS to buy. Installs in minutes and features GUI configuration manager.

http://www.agis.net

AGIS: Get AGIS and get connected! AGIS is a leading Internet backbone services provider specializing in dedicated high bandwidth connectivity to the Internet backbone for Internet service providers, content providers, and large corporations. Visit our web page for details on how your company can get connected to the AGIS high speed backbone!

It's HERE

24X32 inch wall poster



By popular demand - our May 1996 BILLGATUS OF BORG cover is now available in giant life-sized 24x32 inch wall poster. Hang BILLGATUS OF BORG on your wall for just $19.95 plus $4 s&h

DON'T BE ASSIMILATED

Since publication of our May 1996 issue we've received hundreds of e-mail requests for a poster-sized blowup of BILLGATUS OF BORG. We give up. Here it is. Printed on high quality 100 lb. poster stock in a 24x32 inch size - the resolution and color will just knock you down. Hang this on your wall, and we guarantee that if you're in software business you'll get a chill down your spine every time you walk past it - or your money back. Are his eye(s) really following you - watching as you work?

Excellent motivational tool for software development teams, marketers, and others who need to be reminded daily or hourly that they are just a step away from assimilation.

LIMITED EDITION. We still don't believe anyone would actually want one of these. So we've printed a scant 500 and when they're gone, they're gone for good.

DON'T BE ASSIMILATED

ALSO AVAILABLE - BILLGATUS OF BORG FORMAL T-SHIRTS

Meet girls! Receive numerous offers of free pizza. Wear this classy T-shirt to an evening at the opera or just wining or dining about town. Very formal and very chic. This shirt just screams GEEK from every thread. Billgatus of Borg peers out at the world from YOUR chest OR from the chest of that special someone. Size XL only.

Shirt OR poster just $19.95 plus $4 s&h
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BillGatus of Borg Formal T-Shirt

DVORAK ONLINE by John C. Dvorak

THOUGHTS ON THE FUTURE OF UNLIMITED ACCESS AND THE THREAT OF AOL

The Wall Street Journal decided to take on this issue as it appears that a few ISPs are pulling back on the notion of unlimited access since too many users are actually using the service as advertised. These people try to be on all the time. That was the deal, wasn't it?

Over the past months I've received a number of complaints from customers saying that they get cut off after being on an hour or two and are unable to get through again for hours on end. One fellow sent me a letter from his ISP who flat out told the guy he was on "too much!" He asked me how this could be since he bought unlimited access for that magic $19.95 a month fee. Meanwhile, the day the Wall Street Journal ran a piece on how some ISPs are rethinking the unlimited access policy a newcomer ISP in the SF Bay area now offers unlimited access for a flat $99 a year! To complicate matters more AOL went to a $19.95 unlimited access program. This is a momentous policy change that the media hardly covered. (Surprising since it covered the one day AOL blackout to excess).

With the $19.95 deal came the new introductory AOL disk — not 10 free hours, not 15, but 50 free hours! Wow!

For AOL this means the chat rooms will be filled to capacity 24 hours a day. The weirdest part of unlimited access and a flat monthly fee for services such as AOL is that their business model has to be radically changed. First of all every paid online service has to promote events and develop content to keep people coming on and coming back for more. Originally this was so the coffers would fill up with cumulative online charges. It was easy to rack up a couple of hundred bucks a month on AOL or CIS if you were active. With unlimited access you don't want people coming on for special events and special content. Heck, you don't want them coming on at all. There is no financial benefit to be derived from big events or from users who float around on the system chatting or wandering through miscellaneous content aimlessly.

How do management teams whose goal was to encourage aimless wandering, chatting and online dilly-dallying suddenly shift gears and do the opposite? It can't be done. And why bother? In fact AOL hopes to become one whopping big ISP and maybe even sell the company to some sucker (AT&T?) looking for big numbers no matter how those numbers are derived. Perhaps it thinks it can turn all of its once "free" services into pay-per-view services in an effort to get back to those $200 a month online bills. Or perhaps it hopes to mimic the bonehead experiences of Prodigy which began life as a flat rate service with hopes of deriving income from advertisements scattered all over its content. While the Prodigy experiment failed for numerous reasons, the advertising scheme now seems ahead of its time as websites float ad banners everywhere and the complaints against web advertising have reversed. It's now OK. The original Prodigy designers must be having fits over this turn of events. I have noticed odd ads cropping up here and there on AOL, by the way.

It seems apparent that AOL is betting on a vision that precludes the old-fashioned Information Utility model that just a couple of years ago looked so good. The AOL's and Compuserves and anyone else who wants to play in this sandbox have got to become a hybrid service as well as an ISP. I suspect that AOL is simply biting a bullet over this $19.95 program in hopes of locking people into its network in a last ditch effort to try something different. The AOL management obviously had the vision to see that it would eventually be swallowed up by the Web faster than expected. After all it is AOL management who sees the subscription renewal rates for the service. People compare their $50-200 a month bill with the $19.95 ISP bill and good bye AOL. I can imagine that plenty of charts and graphs are rolled out at management meetings the result of which is this new program.

AOL, although it should take a short-term beating from this change-over, may emerge as the strongest ISP and return to-money-making mode if it can manage a micropayment site of some sort

In addition to his weekly syndicated radio call-in show, "Software/Hardtalk," syndicated newspaper columns, magazine writing for ***MacUser, PC Computing, DEC Professional, Information Technology***, and his featured "*Inside Track*" column in ***PC Magazine***, Dvorak is the author of several best-selling books, including ***Dvorak's Inside Track to DOS & PC Performance, Dvorak's Guide to PC Telecommunications,*** and ***Dvorak's Inside Track to the Mac.*** *John can be reached at mailto:* **dvorak@aol.com**

or maybe just suck up advertising dollars by the bushel. One of the overlooked characters at AOL is Ted Leonsis, who I personally consider to be a media genius with the potential of a Rupert Murdoch. Luckily (for the competition) Leonsis has not found his escape velocity product. At AOL I suspect he is either behind this change or will be instrumental in its profitability. Whatever the case, it means AOL will have to reinvent itself as will all the other services.

Here's what AOL and CIS need to do. They must each develop exclusive properties that are worthwhile enough for a person to say to his or herself, "Gee, I see that AOL has that interesting newsletter that I cannot get anywhere else. I'm currently paying my ISP for just web access and email. I can instead pay AOL the same amount and get these other things free." All ISPs have been fretting over something like this which requires them introducing exclusive value-added services. BBS operators, ironically, have had this mindset from the beginning and they are in a powerful position to create value-added content ISPs. Most of the BBS operators who have become ISPs have often spun off their BBS into an open website "for the community, doncha know." It shouldn't take a genius to return to the closed BBS state-of-mind. Many closed private BBSs which opened ISP gateways from within their service are in a good position to exploit this value-added necessity. A well-designed protected home page with local news and information available free for the **$19.95** monthly fee may pay off as a model in the future. Whatever the case the independent ISP should look in the rear view mirror and see AOL looming and decide what to do to keep them back there. It won't be easy.

And what about that $19.95 monthly fee? Is it dead as the Journal suggests? Not on your life. But I would expect to see a continuing battle between the promise of unlimited access and people who want to be on 24-hours a day. ◆

Dvorak's Recipe Nook

Real Brunswick Stew

I found it ironic that one of our housecats sprayed on my favorite cookbook, UNMENTIONABLE CUISINE (Calvin W. Schwabe, Univ. of Virginia Press, 1979), since it had numerous recipes for cat.

The cat later became an unfortunate meal for raiding raccoons, a meat also highlighted in this book. The book, which I highly recommend, outlines genuine recipes for just about everything that can be eaten but which is, by many, considered verboten (horse, dog, cat) or just plain disgusting (cockroaches, ants, rats). The thesis behind this cookbook is that there is plenty of edible protein in the world that we do not eat due to food aversions more than anything else. Schwabe argues that people shouldn't be starving in the streets when we are surrounded by potential food, rodents in particular. As someone interested in history, I find this book quite interesting since it reveals certain changes that have taken place in the American diet — in particular the lack of squirrel in our stews. In fact it seems that eating squirrel was common a hundred years ago and many report that its flavor is far superior to chicken. The squirrel was skinned and dressed in much the same way as rabbit or hare. According to Schwabe squirrel was the essential ingredient in true Brunswick Stew and Burgoo. For those in the mood here is an authentic Brunswick Stew recipe.

From UNMENTIONABLE CUISINE (above):

Quarter several squirrels, season them and dredge in flour. Brown the pieces in lard and then saute some sliced onions in the same pan. Add quartered peeled tomatoes, a sprig of thyme, and water to cover. Cover the pan and simmer the squirrel about an hour. Add Okra cut into pieces, corn cut from the cob, shelled lima beans, coarsely chopped pimentos, chopped parsley, and a little Worcestershire sauce. Cover and continue to simmer until the vegetables are done. Correct the seasoning and thicken, if required, with some pieces of blended lard and flour.

Burgoo is a variant which adds pigeons, rabbits, ducks, chicken and beef to the mix as well as a slew of other vegetables. I would serve either one of these dishes with a strong flavored Rhone wine or a powerful Zinfandel.

So the next time you stop into one of those "authentic" southern barbecue joints and they have Brunswick Stew or Burgoo, ask them if it has squirrel like it oughta.

All signs point

Whether you're in the business of connecting consumers to the Internet, or just getting your company online, wouldn't you prefer a solution that doesn't chip away at your free time? The Internet Protocol Adapter (IPAD) from eSoft is, simply stated, the easiest way to establish a full-featured Internet presence. (And as a bonus, you can discover there's more to life than babysitting an Internet site.)

The IPAD includes these features and much more:

- Multiple interface router (any combination of V.35, EIA 530, Ethernet, Token Ring, or RS-232, to support dial-up, leased lines, ISDN, and LANs).
- Terminal server with full access control, fast PPP/SLIP, and PAP extensions for full compatibility with Microsoft Windows 95.
- Full DNS services (primary and secondary).
- E-mail servers (SMTP and POP3).
- Integral FTP server with access control.
- Integral multihomed web server.
- Packet filtering for firewall construction.
- Internet access for LAN users.
- Provides gateway to external services.
- Remote maintenance support.
- Remote logging capability.
- Standard multihost aliasing.
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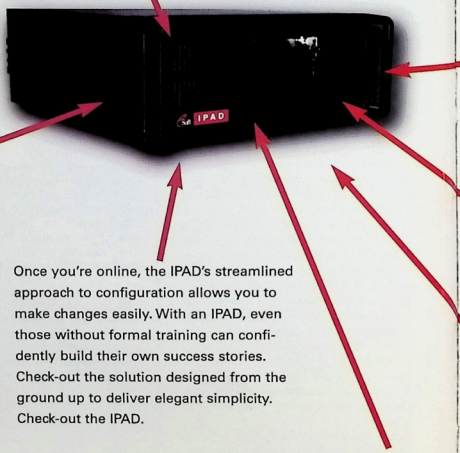

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